

ADDITIONAL



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Service Manual

• DEH-55/UC



**ORDER NO.
CRT 1201**

HIGH-POWER COMPACT DISC PLAYER WITH FM/AM TUNER

DEH-55

UC

HIGH-POWER COMPACT DISC PLAYER WITH FM/MW/LW TUNER

DEH-55 DEH-55SDK

EW, EI

WG

COMPACT
disc
DIGITAL AUDIO

Note:

- This service manual is designed to be used together with Model DEH-66 and DEH-66SDK Service Manual (CRT1166). Refer to it for disassembly and adjustment, etc. which are not shown in this manual.
- See the separate manual CX-173 (CRT1161) for the CD mechanism description.
- See the service manual CDX-3 (CRT1177) for CD mechanism circuit description.

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1. SPECIFICATIONS

• DEH-55/UC

General

Power source	14.4 V DC (10.8–15.6 V allowable)
Grounding system	Negative type
Max. current consumption	5.0 A
Dimensions (chassis)	178 (W) × 50 (H) × 150 (D) mm [7 (W) × 2 (H) × 5–7/8 (D) in.]
(nose)	170 (W) × 46 (H) × 16 (D) mm [6–3/4 (W) × 1–3/4 (H) × 5/8 (D) in.]
Weight	1.8 kg (4 lbs.)

Amplifier

Continuous power output is 10 W per channel min. into 4 Ω, both channels driven 50 to 15,000 Hz with no more than 5 % THD.	
Max. power output	20 W + 20 W (EIAJ)
Load impedance	4 Ω (4–8 Ω allowable)
Max. output level/ output impedance (pre out)	500 mV/1 kΩ
Tone controls (bass)	± 10 dB (100 Hz)
(treble)	± 10 dB (10 kHz)
Loudness contour	+ 10 dB (100 Hz), + 7 dB (10 kHz) (volume: –30 dB)

CD Player

System	Compact disc audio system
Usable discs	Compact disc
Signal format	Sampling frequency: 44.1 kHz Number of quantization bits: 16; linear
Frequency characteristics	5–20,000 Hz (± 1 dB)
Signal-to-noise ratio	85 dB (1 kHz) (IHF-A network)
Dynamic range	87 dB (1 kHz)
Wow and flutter	Below measurement range
Distortion factor	0.008% (1 kHz, 0 dB)
Number of channels	2 (stereo)

• DEH-55/EW, EI, DEH-55SDK/WG

General

Power source	14.4 V DC (10.8–15.6 V allowable)
Grounding system	Negative type
Max. current consumption	5.0 A
Dimensions (chassis)	180 (W) × 50 (H) × 150 (D) mm (nose) 170 (W) × 46 (H) × 16 (D) mm
Weight	1.8 kg

Amplifier

Max. power output	20 W + 20 W (EIAJ)
Continuous power output	11 W + 11 W (1% dist. at 1 kHz)
Load impedance	4 Ω (4–8 Ω allowable)
Max. output level/ output impedance (pre out)	250 mV/1 kΩ
Tone controls (bass)	± 10 dB (100 Hz)
(treble)	± 10 dB (10 kHz)
Loudness contour	+ 10 dB (100 Hz), + 7 dB (10 kHz) (volume: –30 dB)

CD Player

System	Compact disc audio system
Usable discs	Compact disc
Signal format	Sampling frequency: 44.1 kHz Number of quantization bits: 16; linear
Frequency characteristics	5–20,000 Hz (± 1 dB)
Signal-to-noise ratio	85 dB (1 kHz) (IEC-A network)
Dynamic range	87 dB (1 kHz)
Wow and flutter	Below measurement range
Distortion factor	0.008% (1 kHz, 0 dB)
Number of channels	2 (stereo)

FM tuner

Frequency range	87.9–107.9 MHz
Usable sensitivity	12 dBf (1.1 μV/75 Ω, mono)
50 dB quieting sensitivity	17 dBf (1.9 μV/75 Ω, mono)
Signal-to-noise ratio	70 dB (IHF-A network)
Distortion	0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response	30–15,000 Hz (± 3 dB)
Stereo separation	40 dB (at 65 dBf, 1 kHz)
Selectivity	70 dB (2ACA) (± 400 kHz)

AM tuner

Frequency range	530 – 1,620 kHz
Usable sensitivity	18 μV (25 dB) (S/N: 20 dB)
Selectivity	50 dB (± 10 kHz)

These specifications were determined and are presented in accordance with specification standards established by the Ad Hoc Committee of Car Stereo Manufacturers.

Note:

Specifications and the design are subject to possible modification without notice due to improvements.

FM tuner

Frequency range	87.5–108 MHz
Usable sensitivity	12 dBf (1.1 μV/75 Ω, mono)
50 dB quieting sensitivity	17 dBf (1.9 μV/75 Ω, mono)
Signal-to-noise ratio	70 dB (IEC-A network)
Distortion	0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response	30–15,000 Hz (± 3 dB)
Stereo separation	40 dB (at 65 dBf, 1 kHz)

MW tuner

Frequency range	531–1,602 kHz
Usable sensitivity	18 μV (25 dB) (S/N: 20 dB)
Selectivity	50 dB (± 9 kHz)

LW tuner

Frequency range	153–281 kHz
Usable sensitivity	30 μV (30 dB) (S/N: 20 dB)
Selectivity	50 dB (± 9 kHz)

Note:

Specifications and the design are subject to possible modification without notice due to improvements.

2. ELECTRICAL PARTS LIST

NOTE:

- For your parts Stock Control, the fast moving items are indicated with the marks ** and *.
- ** : GENERALLY MOVES FASTER THAN *.
- This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/8S □□□J, RS1/10S □□□J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

Unit Number :
Unit Name : AM Unit(UC,EW,EI)

MISCELLANEOUS

Mark	-----	Circuit Symbol & No.	-----	Part Name	-----	Part No.
** IC	201					PA4010
** Q	201					2SK435
** Q	202					2SC2458
** Q	203 204 205					DTC124ES
*	D 201 202					1S2473VH
*	D 203	Variable Capacitance Diode				SVC203-AB
*	D 204 205					1SS133
L	201	Ferri-Inductor, 1mH				CTF1026
L	202	Ferri-Inductor, 22μH				LAU220K
L	203	Ferri-Inductor, 47μH				LAU470K
L	204	Ferri-Inductor, 4.7μH				LAU4R7K
T	201	Coil				CTB1020
T	202	Coil				CTB1004
T	203	Coil				CTB1022 (CTB1021)
T	204	Coil				CTE1013 (CTE1006)
T	205	Coil				CTE1014 (CTE1007)
T	206	Coil				CTE1015 (CTE1008)
CF	201	Filter				CTF1027 (CTF1041)
CF	202	Filter				CTF-100
X	201	Crystal Resonator				CSS1014

RESISTORS

Mark	-----	Circuit Symbol & No.	-----	Part Name	-----	Part No.
R	201					RS1/10S220J
R	202					RS1/10S681J
R	203 206					RS1/10S222J
R	204					RS1/10S473J
R	205					RS1/10S470J
R	207					RS1/10S822J
R	208 211					RS1/10S103J
R	209					RD1/4PS470JL
R	210					RS1/10S682J
R	212					RS1/8S223J
R	213					RD1/4PS222JL

CAPACITORS

Mark	-----	Circuit Symbol & No.	-----	Part Name	-----	Part No.
C	201 209 223 228					CKSQYB103K50
C	202 212					CKSQYB332K50
C	203 215 216 219 226					CKSQYF473Z50
C	204 208 210					CKSQYB223K50
C	206 207					CCSQCH820J50
C	211					CEA010M50LL
C	213					CCSQCH470J50
C	218					CEA2R2M35NPLL
C	220					CCSQCH430J50
C	221					CCSQCH100D50
C	222					CSZA010K25
C	224					CEA470M16LL
C	225					CKSQYB333K25
C	227					CEA4R7M35LL
C	229					CEA470M16LL
C	230					CEA220M6R3LL
C	232					CCSQCH220J50

Unit Number :
Unit Name : FM Unit(UC,EW,EI)

MISCELLANEOUS

Mark	-----	Circuit Symbol & No.	-----	Part Name	-----	Part No.
** IC	1(UC)					CWW1116
** IC	51					LA1140B
** IC	101					LA2110
** IC	151					LA3430P
** Q	1			Chip Transistor		2SA1162
** Q	2			Chip Transistor		DTC124EK
** Q	51			Chip Transistor		2SC2712
** Q	71			Chip Transistor		2SJ106
*	D 151					1S2473VH
L	1 51			Inductor, 15μH		LAU150K
T	51			Coil		CTC1029
CF	51 52			Ceramic Filter		CTF-182
CR	101					CWW-107
X	151			Ceramic Oscillator		CSS1028 (CSS1022)
** VR	1(UC)			Semi-fixed, 33kΩ (B)		CCP-325
** VR	1(EW, EI)			Semi-fixed, 10kΩ (B)		CCP-322
** VR	101 152			Semi-fixed, 10kΩ (B)		CCP-322
** VR	151			Semi-fixed, 150kΩ (B)		CCP-329
					Front End Unit	CWB1032

RESISTORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
R	2	7 152		RS1/10S223J	
R	3	(UC)		RS1/10S473J	
R	4	58 104		RS1/10S682J	
R	5	(UC)		RS1/10S0R0J	
R	5	(EW, E1)		RS1/10S471J	
R	6	(UC)		RS1/8S153J	
R	6	(EW, E1)		RS1/8S681J	
R	21	(EW, E1) 22(EW, E1)		RS1/8S0R0J	
R	23			RS1/10S0R0J	
R	51			RS1/8S0R0J	
R	52			RS1/10S331J	
R	53	57		RS1/10S473J	
R	54			RS1/10S104J	
R	55	60		RS1/10S153J	
R	56			RS1/8S123J	
R	59			RD1/4PS183JL	
R	61	62		RS1/10S472J	
R	71			RS1/10S474J	
R	101			RS1/10S332J	
R	102			RS1/10S392J	
R	103			RS1/10S183J	
R	151			RS1/10S222J	
R	153			RS1/8S472J	
R	156	(UC) 157(UC)		RS1/10S202J	
R	156	(EW, E1) 157(EW, E1)		RS1/10S332J	
R	158			RS1/10S334J	

CAPACITORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
C	1			CKSQYB102K50	
C	2	101 102		CKSQYB103K25	
C	4	51 52 53 54 59		CKSQYF473Z50	
C	55	62		CCSQSL330J50	
C	56	63		CEAR47M50LS2	
C	57			CKSQYF104Z25	
C	58	156		CEA010M50LS2	
C	60			CCSQSL101J50	
C	61			CEA47M16NPLL	
C	70			CCSQCH200J50	
C	103	105 161		CEA470M16LS	
C	104			CKSQYB182K50	
C	151			CKSYF473Z50	
C	152			CKSQYB332K50	
C	153			CKSQYB223K25	
C	154			CKSQYB153K25	
C	155			CEA3R3M50LS	
C	157			CSZAR22M35	
C	158	(EW, E1)		CCSQSL681J50	
C	159	(UC) 160(UC)		CKSYB393K25	
C	159	(EW, E1) 160(EW, E1)		CKSYB183K25	

Unit Number :

Unit Name : Tuner Unit(WG)

MISCELLANEOUS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
**	IC	51		LA1140B	
**	IC	101		KHA115	
**	IC	151		MX3S400	
**	IC	201		PA4010	
**	IC	801		KHA142	
**	Q	1	Chip Transistor	2SA1162	
**	Q	2	Chip Transistor	DTC124EX	
**	Q	51	Chip Transistor	2SC2712	
**	Q	71		2SJ105	
**	Q	201		2SK435	
**	Q	202		2SC2458	
**	Q	203 204 205		DTC124ES	
*	D	151	Chip Diode	MA151WA	
*	D	201 202		IS2473VH	
*	D	203	Variable Capacitance Diode	SVC203-AB	
*	D	204 205		ISS133	
L	1	51	Inductor	LAU150K	
L	201		Ferri-Inductor	CTF1026	
L	202		Ferri-Inductor	LAU220K	
L	203		Ferri-Inductor	LAU470K	
L	204		Ferri-Inductor	LAU4R7K	
T	51		Coil	CTC1029	
T	201		Coil	CTB1020	
T	202		Coil	CTB1004	
T	203		Coil	CTB1022	
				(CTB1021)	
T	204		Coil	CTE1013	
				(CTE1006)	
T	205		Coil	CTE1014	
				(CTE1007)	
T	206		Coil	CTE1015	
				(CTE1008)	
CF	51	52	Ceramic Filter	CF-182	
CF	201		Ceramic Filter	CF1041	
				(CTF1027)	
CF	202		Filter	CF-100	
X	201		Crystal Resonator	CS1014	
X	801		Ceramic Resonator	CS1019	
**	VR	1 152	Semi-fixed 10kΩ (B)	CP-322	
**	VR	101	Semi-fixed 15kΩ (B)	CP-323	
**	VR	151	Semi-fixed 150kΩ (B)	CP-329	
G	501		Surge Protector	DSP-201M-S00B	
			Front End Unit	QB1032	

RESISTORS

Mark	-----	Circuit Symbol & No.	-----	Part Name	Part No.
R	2			RS1/8S223J	
R	4			RS1/8S682J	
R	5			RS1/8S471J	
R	6			RS1/10S681J	
R	7			RS1/10S223J	
R	23 51			RS1/10S0R0J	
R	52			RS1/10S331J	
R	53 57 802			RS1/10S473J	
R	54			RS1/10S104J	
R	55 60			RS1/10S153J	
R	56			RS1/10S123J	
R	58			RS1/10S682J	
R	59			RD1/4PS183JL	
R	61 62			RS1/10S472J	
R	71			RS1/10S474J	
R	101			RS1/10S332J	
R	102			RS1/8S183J	
R	103			RS1/8S562J	
R	201			RS1/10S220J	
R	202			RS1/10S681J	
R	203 206			RS1/10S222J	
R	204			RS1/10S473J	
R	205			RS1/10S470J	
R	207			RS1/10S822J	
R	208 211			RS1/10S103J	
R	209			RD1/4PS470JL	
R	210			RS1/10S682J	
R	212			RS1/8S223J	
R	213			RD1/4PS222JL	
R	801			RS1/10S222J	

CAPACITORS

Mark	-----	Circuit Symbol & No.	-----	Part Name	Part No.
C	1			CKSQYB102K50	
C	2 802			CKSQYB103K50	
C	4 54			CKSYF473Z50	
C	51 52 53 59			CKSQYF473Z50	
C	55 62			CCSACL330J50	
C	56 63			CEAR47M50LS2	
C	57			CKSQYF104Z25	
C	58			CEA010M50LS2	
C	60			CCSACL101J50	
C	61			CEA4R7M16NPLL	
C	70			CCSQCH200J50	
C	101 105 161			CEA470M16LS	
C	152			CKSQYB332K50	
C	154			CKSQYB153K25	
C	159 160			CKSYB123K50	
C	201 209 223 228			CKSQYB103K50	
C	202 212			CKSQYB332K50	
C	203 215 216 219 226			CKSQYF473Z50	
C	204 208 210			CKSQYB223K50	
C	206 207			CCSQCH820J50	
C	211			CEA010M50LS2	
C	213			CCSQCH470J50	
C	218			CEA2R2M35NPLL	
C	220			CCSQCH430J50	
C	221			CCSQCH100D50	

Mark	-----	Circuit Symbol & No.	-----	Part Name	Part No.
C	222			CSZA010K25	
C	224			CEA470M16LS	
C	225			CKSQYB333K25	
C	227			CEA4R7M35LS	
C	229			CEA470M16LS	
C	230			CEA220M6R3LL	
C	232			CCSQCH220J50	
C	801			CQMA683J50	
C	803		220 μ F/10V	CCH1015	
C	804			CEA4R7M35LS	
C	805			CEA220M16LS	
C	806			CSZAR33M35	

Unit Number :
Unit Name : Amp Unit

MISCELLANEOUS

Mark	-----	Circuit Symbol & No.	-----	Part Name	Part No.
**	IC 551			TA8215L	
**	Q 551			2SD1859	
*	D 551		Chip Diode	MA3091-L	
	L 551		Choke Coil	CTH1023	
	R 551 552			RS1/10S682J	
	R 553 554			RS1/10S123J	
	R 555 556			RD1/4PS181JL	
	R 557 558 559 560			RD1/4PS4R7JL	
	R 561			RS1/10S821J	
	R 562 563 566			RS1/8S0R0J	
	R 564 565			RS1/10S0R0J	
	C 551 552			CEA4R7M35LL	
	C 553 554			CCSACL271J50	
	C 555 556 571			CEA470M10LL	
	C 557 558 559 560			CQEA224J63	
	C 569		1000 μ F/16V	CCH-124	
	C 570		220 μ F/10V	CCH1014	
	C 572			CKSYF473Z50	

Unit Number :
Unit Name : Power Supply Unit

MISCELLANEOUS

Mark	-----	Circuit Symbol & No.	-----	Part Name	Part No.
**	IC 951			M5F7809M	
**	IC 952			AN6540	
**	IC 953			AN7805R	
**	Q 951 953			2SB1243	
**	Q 952 954 955			2SB1238	
**	Q 956 960		Chip Transistor	2SC2712	
**	Q 957		Chip Transistor	UN2210	
**	Q 958 959		Chip Transistor	UN2212	
*	D 951			ERC05-10B	
*	D 952 953 954 955 956 957			ERA15-02VH	
	L 951		Choke Coil	CTH1015	
	L 952		Choke Coil	CTH1005	

RESISTORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
R	952 955 957 959 961 968				RS1/10S223J
R	953(EW, EI, WG)				RS1/10S152J
R	954(UC)				RS1/10S152J
R	956 958 960				RS1/10S222J
R	962				RS1/10S152J
R	963				RS1/10S333J
R	965				RS1/10S104J
R	966 967				RS1/10S153J
R	969				RS1/10S103J

CAPACITORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
C	951 952 958				CEA010M50LS2
C	953	1000 μ F/16V			CCH1003
C	954 957	2200 μ F/16V			CCH1001
C	955	470 μ F/16V			CCH-114
C	956				CEA101M10L2
C	959(UC)				CEA101M16L2
C	959(EW, EI, WG)				CEA101M10LL
C	960				CEA470M16LS
C	961 962 963 964				CKSQYB153X50
C	965 966				CCG-105
C	967				CEA102M16L2

Unit Number :
Unit Name : CD Unit

MISCELLANEOUS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
**	IC 351				CKA1081M
**	IC 451				M5218FP
**	IC 452				KHA215
**	IC 501				LC7218M
**	IC 601				CKA1082AQ
**	IC 651 652				PA3023
**	IC 655 657				M5218FP
**	IC 656				M5233FP
**	IC 701				CKD1135Q
**	IC 702				CKK5816M-15L
**	IC 703				μ PD6355G
**	IC 704				KHA220
**	IC 751				PD4136B
**	IC 752				M51955AFP
**	IC 753 881				M51945AFP
**	IC 754				M54546AL
**	IC 851				M5228FP
**	Q 351				2SB822F
**	Q 451(WG) 452(WG)	Chip Transistor			DTC343TK
**	Q 453(WG)	Chip Transistor			UN5210
**	Q 454(WG) 455(WG)	Chip Transistor			2SD1819
**	Q 502	Chip Transistor			2SC3295
**	Q 503 504 505 506	Chip Transistor			2SC4116
**	Q 507(EW, EI, WG)	Chip Transistor			DTC124EU
**	Q 508 509	Chip Transistor			DTA124EU

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
**	Q 510 511	Chip Transistor			DTC114TU
**	Q 512 513	Chip Transistor			RN2427
**	Q 514 757 758				2SD1226MF
**	Q 515(WG)				2SD1226MF
**	Q 601 651 652 653	Chip Transistor			UN2211
**	Q 701 705 756 760	Chip Transistor			UN2211
**	Q 702 706 759	Chip Transistor			UN2111
**	Q 703 704	Chip Transistor			2SD1048
**	Q 851 852 855 856	Chip Transistor			DTC343TK
**	Q 853	Chip Transistor			2SD1819
**	Q 854	Chip Transistor			DTA114EU
**	Q 882 883	Chip Transistor			DTC114EU
*	D 451(WG)	Chip Diode			MA141WA
*	D 452 453	Chip Diode			MA3056-L
*	D 501 502 503	Chip Diode			MA141WK
*	D 504	Chip Diode			MA143
*	D 505	Chip Diode			MA3056-M
*	D 506 851 852	Chip Diode			MA141WA
*	D 651				ERA15-02
*	D 652				ERA82-004Y
*	D 653 654 655 656 657 658 659				ERA82-004VH
*	D 661 662				HZS2ALL
*	D 701	Chip Diode			MA151WA
*	D 753	Chip Diode			MA3200-M
*	D 754				HZ6LB1
*	D 755	Chip Diode			MA3062-H
L	501	Ferri-Inductor			LAU470K
L	651	Choke Coil			CTH1035
TH	351	Thermister			CCX1001
TH	751	Thermister			CCX-021
IB	851(UC)				CWW1097
IB	851(EW, EI, WG)				CWW1096
IB	852				CWW1096
G	501(EW, EI)	Surge Protector			DSP-201M-S00B
X	501	Crystal Resonator			CSS1030
X	701	Crystal Resonator			CSS1027
X	751	Ceramic Oscillator			CSS-042
**	VR 351	Semi-fixed, 47k Ω (B) \times 1, 10k Ω (B) \times 2			CCP1005
**	VR 352	Semi-fixed, 47k Ω (B) \times 4			CCP1006
**	VR 604	Semi-fixed, 2.2k Ω (B)			HCP-267
**	VR 651	Semi-fixed, 47k Ω (B)			HCP-275
		Buzzer			CPV1007

RESISTORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
R	351				RS1/2P220JL
R	353 381 536 540 708 709 851 852 881				RS1/10S102J
R	354 363 378				RS1/10S223J
R	355 610 625 785				RS1/10S113J
R	356 357 358 359 669				RS1/10S563J
R	360 361				RS1/10S124J
R	362 763				RS1/10S564J
R	364 365 618 671				RS1/10S105J
R	366 377 666				RS1/10S562J
R	367				RS1/10S104J

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
R	379	515 525 710 711			RS1/10S472J
R	380	617 628 682			RS1/10S203J
R	382				RS1/10S363J
R	383				RS1/10S823J
R	384	630			RS1/10S273J
R	451	452			RS1/10S562J
R	453	454			RS1/10S433J
R	455	456 505 521 527 529 537 673 865			RS1/10S473J
R	457	(WG)			RS1/10S103J
R	458	(WG) 459(WG)			RS1/10S104J
R	460	461 462 853 854 859 860			RS1/10S223J
R	463	464 501 502 503 504 523 530 532			RS1/10S222J
R	506	533 609 614 619 627 773 774			RS1/10S104J
R	511	(EW, EI, WG)			RS1/10S561J
R	512	(EW, EI, WG)			RS1/10S332J
R	513	517 526 528 531 775			RS1/10S103J
R	514				RS1/10S122J
R	516	524 634			RS1/10S474J
R	518	667 684 686 717			RS1/10S472J
R	519	629			RS1/10S153J
R	520				RS1/10S393J
R	522				RS1/10S221J
R	534	535 538 714 724 725 726 727 787			RS1/10S0R0J
R	541	(WG)			RS1/10S221J
R	542	(UC)			RS1/10S392J
R	601	602			RS1/10S101J
R	606				RS1/10S224J
R	607	764			RS1/10S683J
R	608				RS1/10S823J
R	611				RS1/10S432J
R	612				RS1/10S623J
R	613				RS1/10S624J
R	616				RS1/10S183J
R	620				RS1/10S332J
R	621				RS1/10S184J
R	622	670 687 696 697 715 718 719 751 752			RS1/10S103J
R	623	765			RS1/10S473J
R	624	882			RS1/10S393J
R	631				RS1/10S272J
R	665	790			RS1/10S821J
R	668	679			RS1/10S392J
R	672				RS1/10S364J
R	674	716			RS1/10S332J
R	676	677 799			RS1/10S201J
R	678				RS1/10S223J
R	680				RS1P1R5JL
R	681				RS1/10S203J
R	683				RS1/10S101J
R	685	692			RS1/10S105J
R	690				RS1/10S272J
R	691	703 755 855			RS1/10S103J
R	694	786			RS1/10S822J
R	701				RS1/10S100J
R	712	713			RS1/10S392J
R	721				RS1/10S4R7J

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
R	728	778			RS1/10S0R0J
R	753	754 756 779			RS1/10S681J
R	762				RS1/10S391J
R	766	767			RS1/10S681J
R	770	771			RS1/10S222J
R	781				RS1/10S303J
R	782				RS1/10S154J
R	856	(UC) 868(UC)			RS1/10S0R0J
R	856	(EW, EI, WG)			RS1/10S101J
R	857	858 866			RS1/10S102J
R	867	(UC) 889(UC)			RS1/10S0R0J
R	883				RS1/10S204J
R	890	891 892 893			RS1/10S6R8J

CAPACITORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
C	351				CEA101M6R3LS
C	352	611 625 626 662 664 713 724 727 751			CKSQYB103K50
C	353	613 666			CKSYB333K25
C	354	357			CASA330M6R3
C	355	667 668 714			CKSQYB103K50
C	356				CKSYB332K50
C	359	614			CEAR47M50LS
C	360	361			CSZS010M16
C	370	703 704			CCSQCH220J50
C	371	512 615			CKSQYB102K50
C	372				CCSQCH100D50
C	373	627			CCSQCH220J50
C	451	452 617			CEA47M16LS
C	453	454			CEA47M50LS
C	455	456 602 653 708 709			CEA100M25LS
C	457	458 520 855 856 857 858			CEA101M10LS
C	459				CEA470M16LS
C	460	518 519 606			CEA220M16LS
C	461	462			CCSQCH330J50
C	501	502			CCSQCH270J50
C	503	510 511 513			CKSQYF473Z50
C	505				CCSQSL561J50
C	508	(EW, EI, WG)			CSZSR68M20
C	509	517 728 729 754 758			CKSQYB103K50
C	514				CKSQYF104Z25
C	516	621			CEA47M16NPLL
C	521	(WG)			CEA220M10LS
C	522	(WG)			CEA470M16LS
C	601				CKSQYB222K50
C	603	607 612 716			CEA100M6R3LS
C	605	620 622 628 629			CKSYB473K25
C	608				CEA220M6R3NPLL
C	609	756			CKSQYB472K50
C	610	619			CCSQCH221J50
C	616				CEA220M6R3LS
C	618				CKSQYB682K50
C	623				CKSQYB272K50
C	624				CCSQCH391J50
C	651	670			CKSYF224Z25
C	652				CM-114

470 μ F/16V

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
C	654	658		CCSQCH221J50	
C	656			CEA100M16LS	
C	661	663		CEA010M50NPLL	
C	665	678 852		CKSYB473K25	
C	671	672		CSZSR68M20	
C	674	705		CASA100M6R3	
C	675	676		CEA2R2M35LS	
C	677	679 680		CCSQSL681J50	
C	681			CKSYB393K25	
C	701	710 712 726		CASA6R8M6R3	
C	702			CASA220M6R3	
C	706	707		CCSQCH470J50	
C	717	718		CEA470M6R3LS	
C	722	723		CEA330M6R3LS	
C	752	753		CCSQCH300J50	
C	755			CEA101M6R3LS	
C	757			CASA6R8M10	
C	851	(EW, E1, WG)		CKSYB473K25	
C	853	854		CEA3R3M50LS	
C	859			CEA220M6R3LS	
C	861	862		CEA3R3M25LS	

Unit Number :
Unit Name : Display Unit

MISCELLANEOUS(UC,EW)

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
**	IC	901			PD4194
**	IC	902			NJM2903M
**	Q	901			2SB822F
**	Q	902		Chip Transistor	UN5210
**	Q	903 904 905 906 907		Chip Transistor	DTC124TU
*	D	901		Chip Diode	MA141WA
*	D	902(UC) 903(UC)		Chip Diode	MA141A
*	D	902(EW) 903(EW)		Chip Diode	MA141WA
*	D	904		Chip Diode	MA141A
*	D	905		LED	LN260RCPXO
*	D	906 907		Chip Diode	MA141X
*	D	908 909		Chip LED	CL55UR/Y0R0A
*	D	910 911 912 913 914 915 916 917 918		Chip LED	CL51YCD680A
*	D	919 920 921 922 925 928 929 931 933		Chip LED	CL51YCD680A
*	D	923 924 926 927 930 932		LED	LN460YCPX
L	901			Inductor	LAU150K
TC	901(UC)			Trimmer	CC1012
**	S	901 902 903 904 905 906 907 908 909 910		Switch	CSG-255
**	S	911 912 913 914 915 916 917 918 919 920		Switch	CSG-255
**	S	921 922 923 924 925		Switch	CSG-255
**	IL	901 902		Lamp, 8V 60mA	CE1089
X	901			Crystal Resonator	CS1023
				LCD(UC)	CW1161
				LCD(EW)	CW1203

MISCELLANEOUS(EI)

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
**	IC	901			PD194
**	IC	902			NJM2903M
**	Q	901			2SB822F
**	Q	902		Chip Transistor	UN5210
**	Q	903 904 905 906 907		Chip Transistor	DTC124TU
*	D	901 902 903		Chip Diode	MA141WA
*	D	904		Chip Diode	MA141A
*	D	905		LED	LN60RCPXO
*	D	906 907		Chip Diode	MA141X
*	D	908 909		Chip LED	CL55UR/PG0R0A
*	D	910 911 912 913 914 915 916 917 918		Chip LED	CL1PGCD680A
*	D	919 920 921 922 925 928 929 931 933		Chip LED	CL1PGCD680A
*	D	923 924 926 927 930 932		LED	LN60GCPXG
L	901			Inductor	LA150K
**	S	901 902 903 904 905 906 907 908 909 910		Switch	CS-255
**	S	911 912 913 914 915 916 917 918 919 920		Switch	CS-255
**	S	921 922 923 924 925		Switch	CS-255
**	IL	901 902		Lamp, 8V 60mA	CE1088
X	901			Crystal Resonator	CS1023
				LCD	CW1162

MISCELLANEOUS(WG)

Mark	-----	Circuit Symbol & No.	-----	Part Name	Part No.
** IC	901				PD4195
** IC	902				NJM2903M
** Q	901				2SB822F
** Q	902			Chip Transistor	UN5210
** Q	903 904 905 906 907			Chip Transistor	DTC124TU
* D	901 902 903 904			Chip Diode	MA141A
* D	905			LED	LN260RCPXO
* D	906 907			Chip Diode	MA141K
* D	908 909			Chip LED	CL55UR/YOR0A
* D	910 911 912 913 914 915 916 917 918			Chip LED	CL61YCD680A
* D	919 920 921 922 925 928 929 931 933			Chip LED	CL61YCD680A
* D	923 924 926 927 930 932			LED	LN460YCPX
L	901			Inductor	LAU150K
** S	901 902 903 904 905 906 907 908 909 910			Switch	CSG-255
** S	911 912 913 914 915 916 917 918 919 920			Switch	CSG-255
** S	921 922 923 924 925			Switch	CSG-255
** IL	901 902			Lamp, 8V 60mA	CEL1089
X	901			Crystal Resonator	CCS1023
				LCD	CWW1203

RESISTORS(UC, EW, EI, WG)

Mark	-----	Circuit Symbol & No.	-----	Part Name	Part No.
R	901				RS1/10S223J
R	902 907 918 919 920 921 922 925				RS1/10S222J
R	903				RS1/10S473J
R	904				RS1/10S221J
R	905				RS1/10S361J
R	906				RS1/10S123J
R	908 924 926				RS1/8S222J
R	909				RS1/10S222J
R	910 911 912 913 914 942				RS1/10S204J
R	915 916 917				RS1/10S104J
R	927 928 929 930				RS1/10S181J
R	931 932				RS1/8S331J
R	933 934				RS1/8S241J
R	935 936 938 939				RS1/10S331J
R	937 940				RS1/10S471J
R	941				RS1/10S391J
R	943 944				RS1/10S121J

CAPACITORS(UC, EW, EI, WG)

Mark	-----	Circuit Symbol & No.	-----	Part Name	Part No.
C	901				CKSQYF104Z25
C	902 905 908				CKSYF334Z25
C	903(EW, EI, WG)				CCSQCH080D50
C	904				CCSQCH040C50
C	906 907				CKSQYB103K50

Unit Number :

Unit Name : Mechanism P.C. Board

Mark	-----	Circuit Symbol & No.	-----	Part Name	Part No.
** Q	831			Photo Transistor(DISC SENSE)	PH102K
* D	831			LED(DISC SENSE)	SLH-34VC3F
** M	833			Motor Unit(LOADING)	CKA2129
** S	832			Switch(DISC SET)	CSN1009

Unit Number :

Unit Name : Carriage P.C. Board

Mark	-----	Circuit Symbol & No.	-----	Part Name	Part No.
** M	831			Motor Unit(SPINDLE)	CXM1033
** M	832			Motor Unit(CARRIAGE)	CXA2133
** S	831			Switch(HOME)	CSN-094

Miscellaneous Parts List

Mark	-----	Circuit Symbol & No.	-----	Part Name	Part No.
				PU Unit	CGY1007

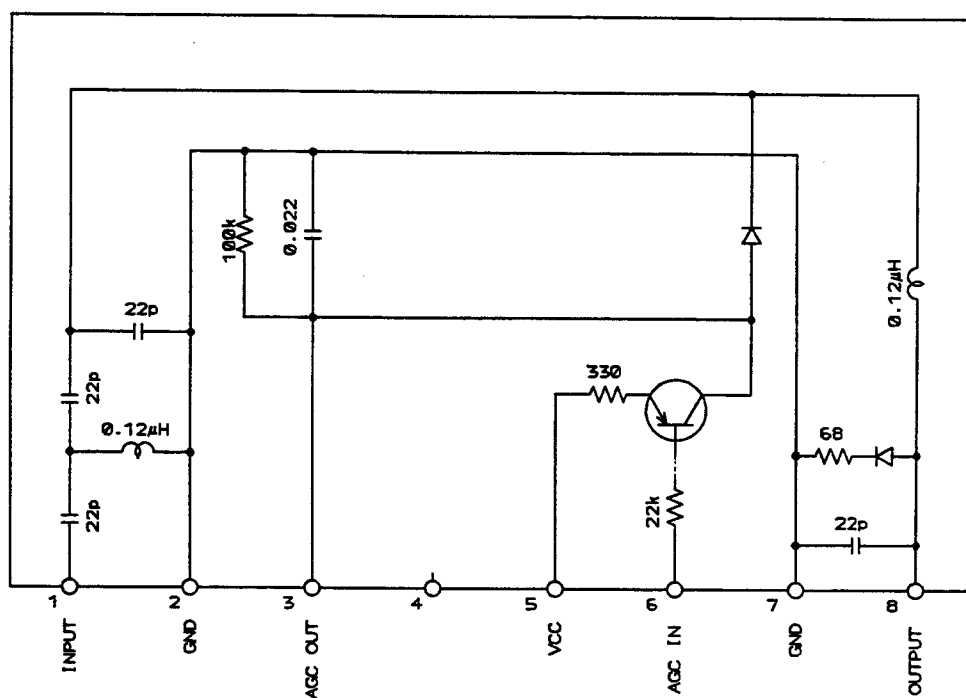
- ICs and Transistors

2SD1226MF

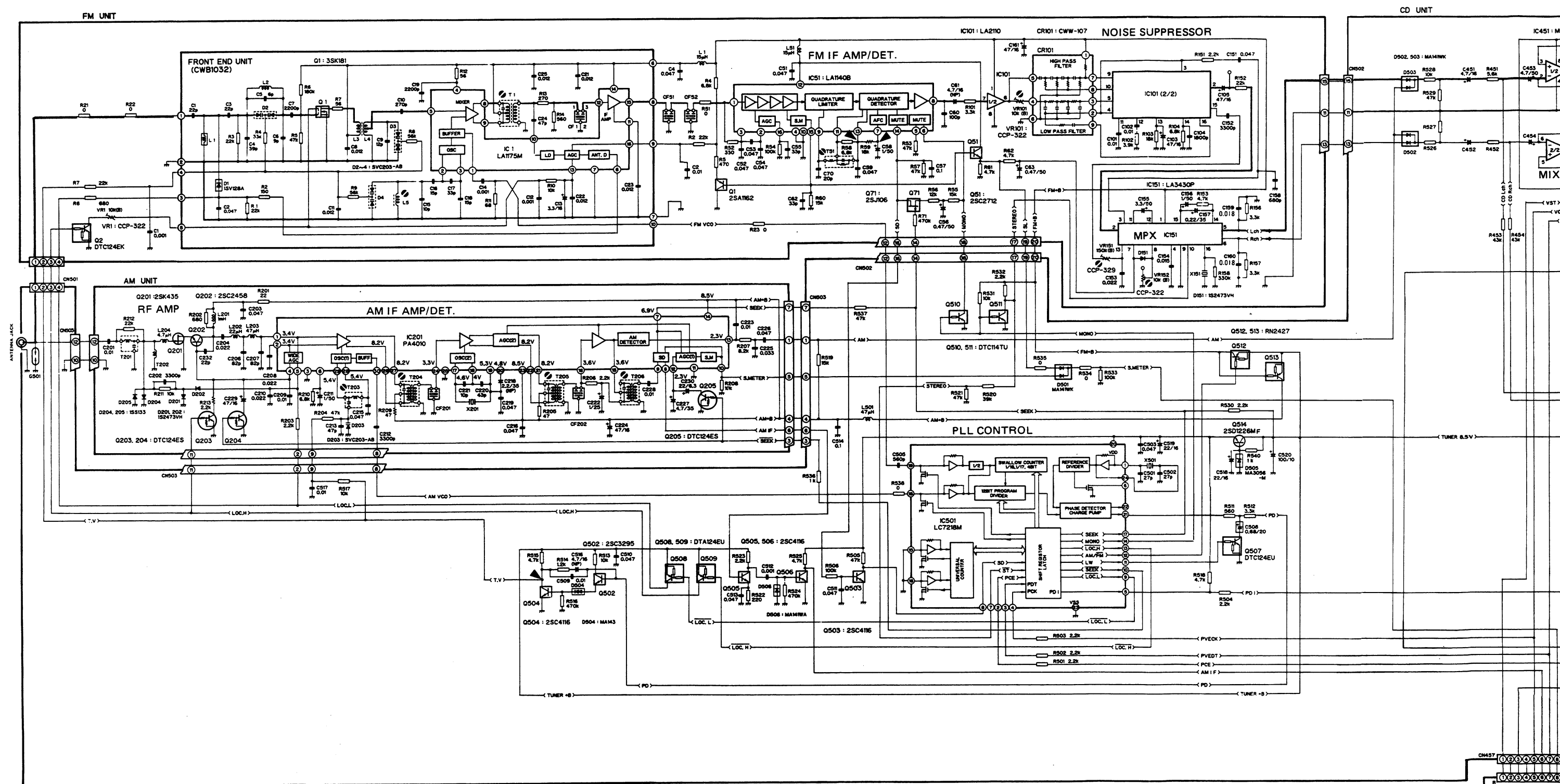


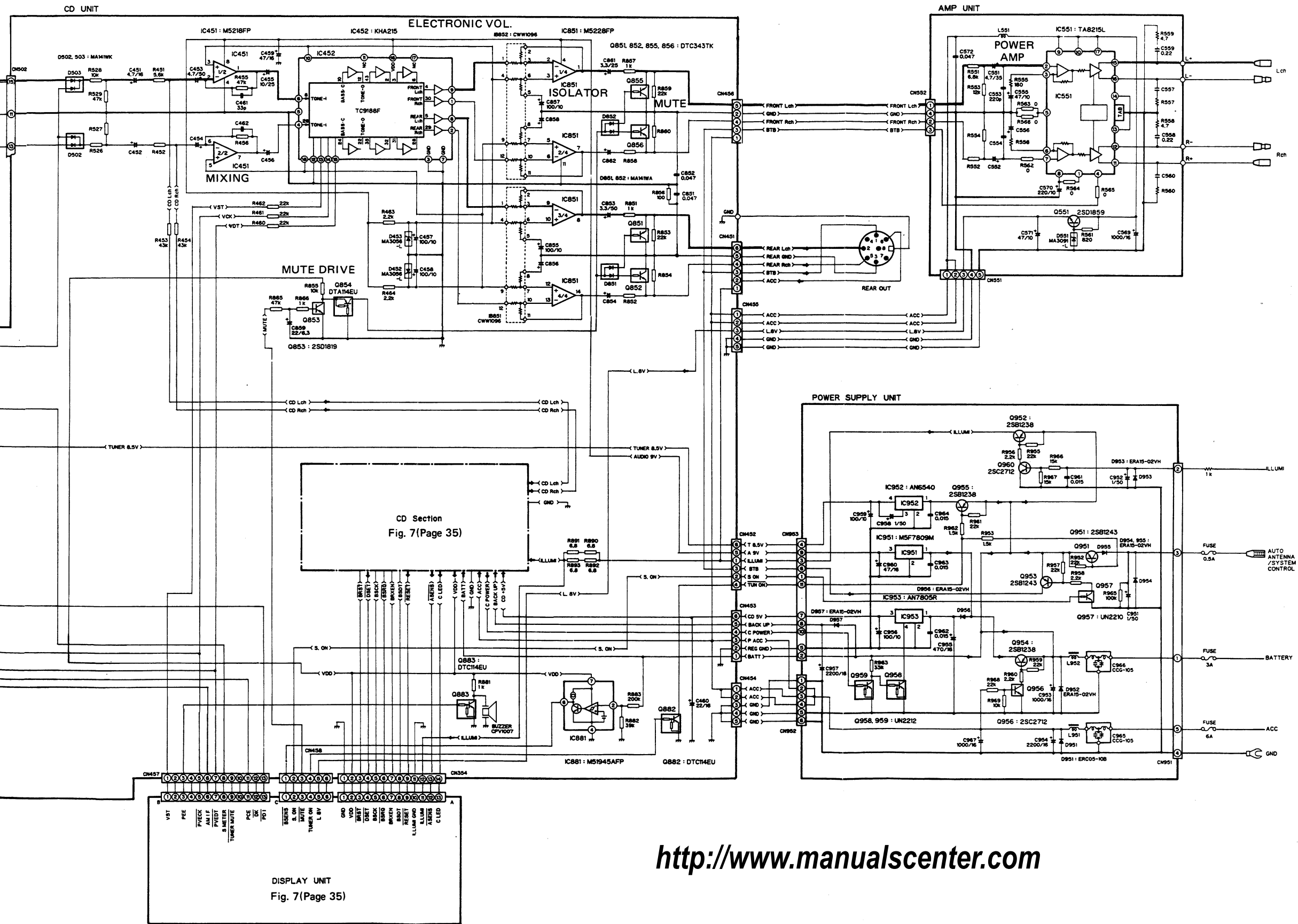
- FM Unit

IC1(DEH-55/UC) : CWW1116



3. SCHEMATIC CIRCUIT DIAGRAM (TUNER DEH-55/EW, EI)





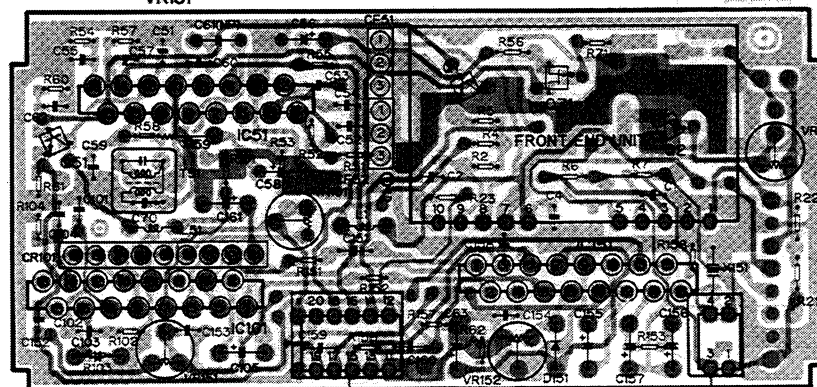
<http://www.manualscenter.com>

Fig. 1

4. CONNECTION DIAGRAM (TUNER DEH-55/EW, EI)

FM UNIT

IC.Q Q51 IC101 IC51 Q1 Q71 IC151 Q2
ADJ T51 VR101 VR152

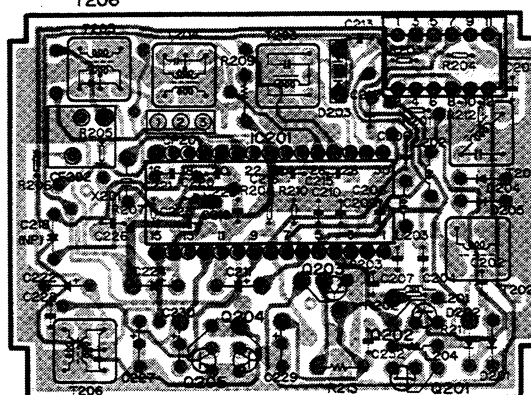


AM UNIT : IC201

1	2	3	4	5	6	7	8	9	10
3.4V	3.4V	0V				6.9V			
11	12	13	14	15	16	17	18	19	20
0V	2.3V	2.3V	8.5V	3.6V	3.6V	4.6V	4.0V	5.3V	4.8V
21	22	23	24	25	26	27	28	29	30
8.2V	8.2V	8.5V	3.3V	0V	8.2V	8.2V	5.4V	5.4V	

AM UNIT

IC.Q IC201 Q202
Q205 Q204 Q203 Q201
ADJ T205 T204 T203
T206

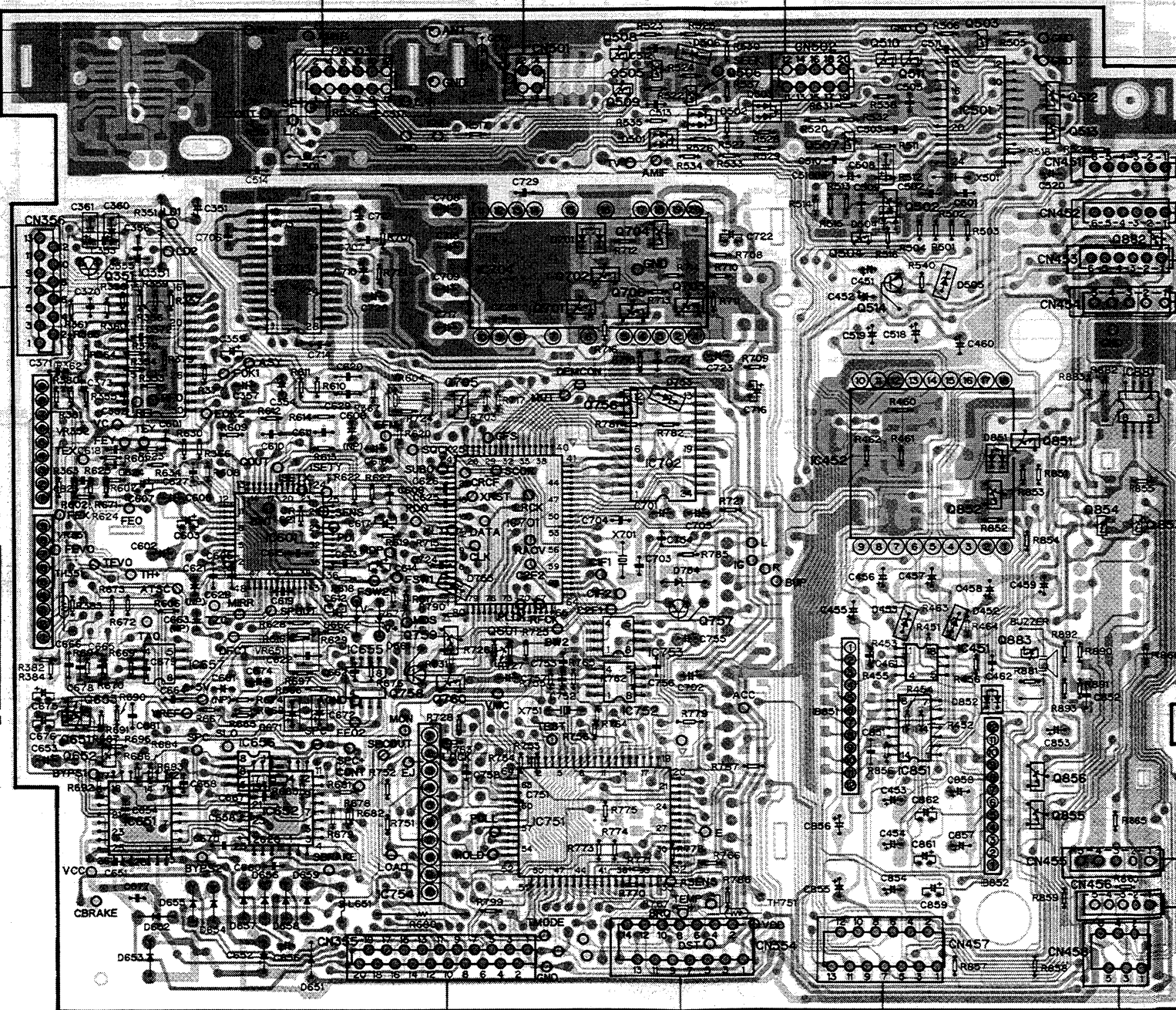
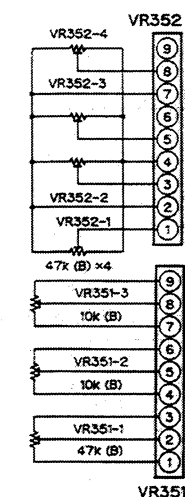


CD UNIT

Q758 Q756 IC752 Q757 Q510 Q511 IC501 Q513 Q512 Q882
Q508 Q509 Q505 Q502 Q514 IC451 Q503 Q883 Q855 Q854 IC881
Q758 IC754 Q760 IC701 IC704 Q701 Q706 Q703 Q506 Q507 Q504 IC851 IC452 Q852 Q851 Q856 Q853
IC.Q Q653 Q351 IC351 IC601 IC703 IC655 Q705 Q759 Q601 IC751 Q702 IC753 Q704 IC702
ADJ VR352 VR351 VR651 VR604

ANTENNA
JACK

TO PU UNIT



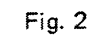
TO MECHANISM
P.C. BOARD

TO DISPLAY UNIT
CONNECTOR A

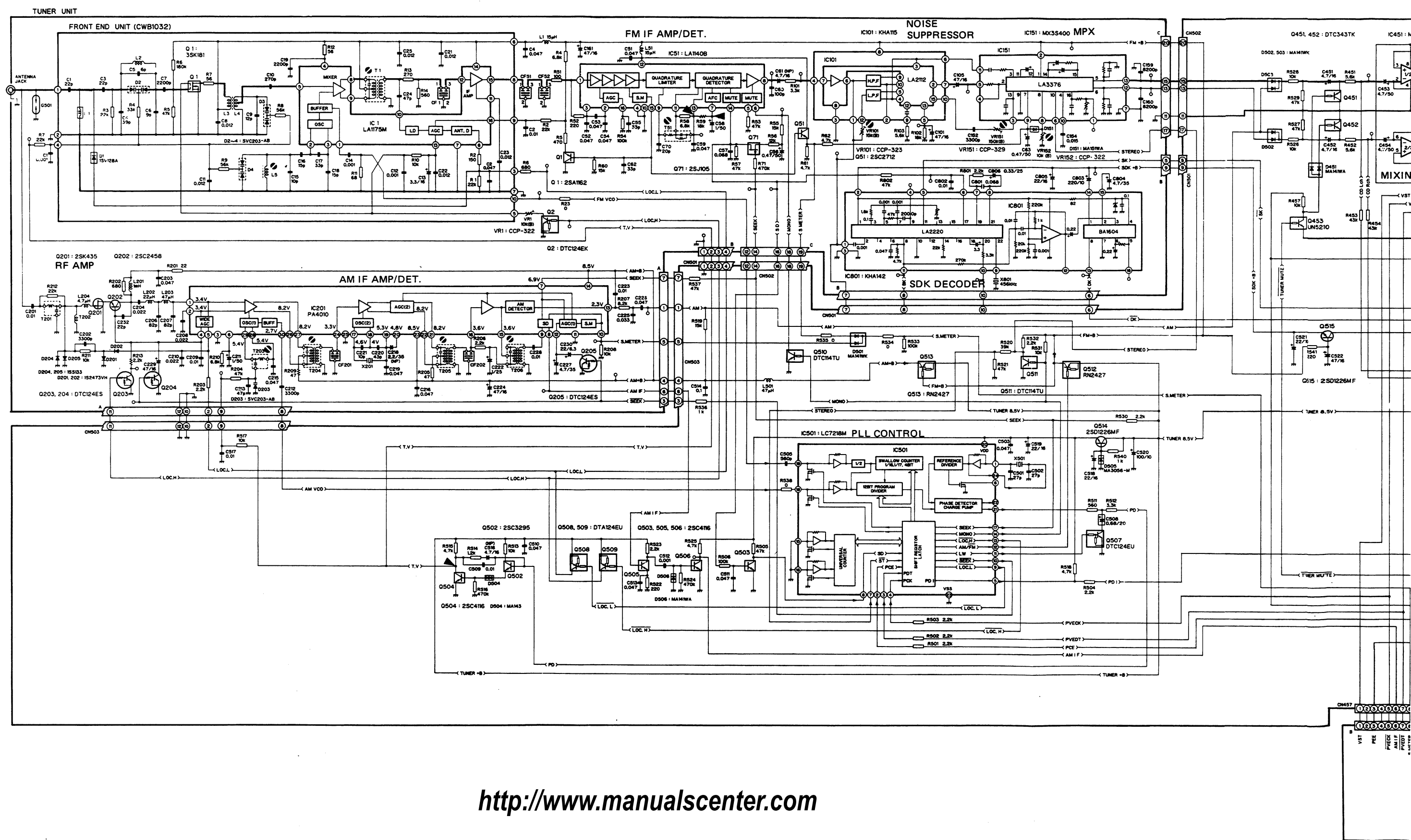
TO DISPLAY UNIT
CONNECTOR B

TO DISPLAY UNIT
CONNECTOR C

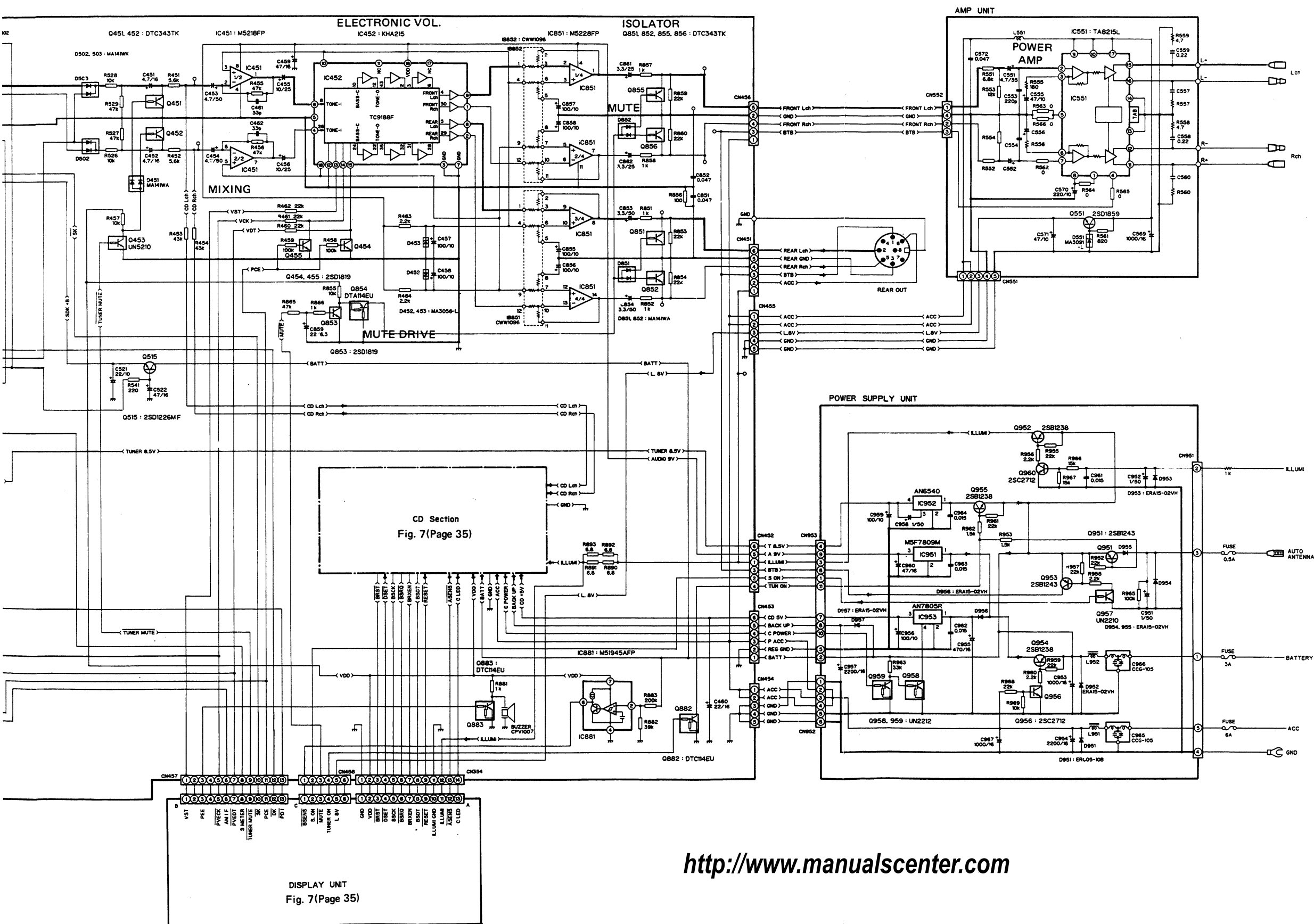
<http://www.manualscenter.com>



5. SCHEMATIC CIRCUIT DIAGRAM (TUNER DEH-55SDK/WG)



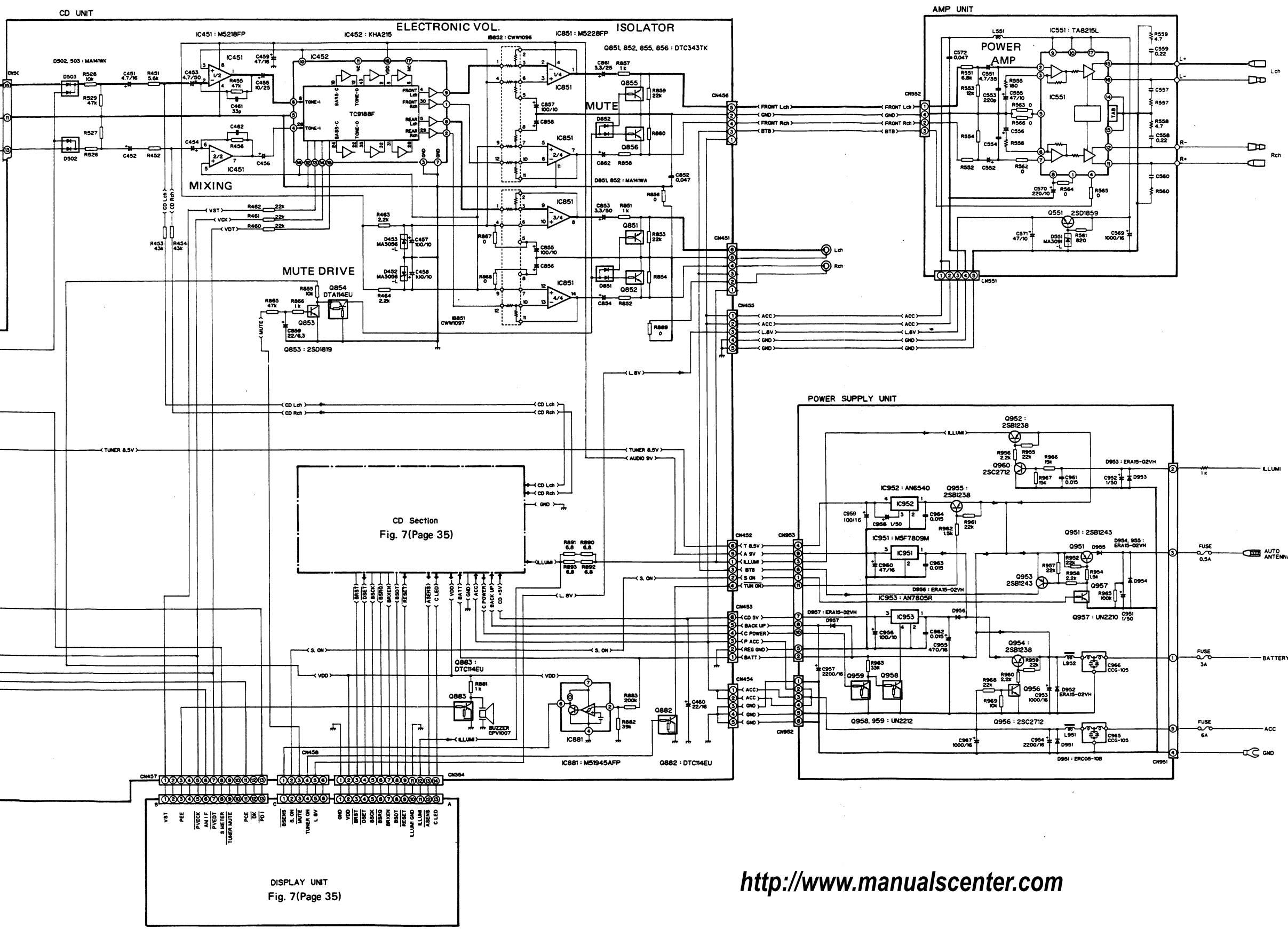
<http://www.manualscenter.com>



<http://www.manualscenter.com>

NOTE:
 △ Indicates a chip resistor.
 □ Indicates a chip capacitor.
 ○ Indicates a chip transistor.

Fig. 3



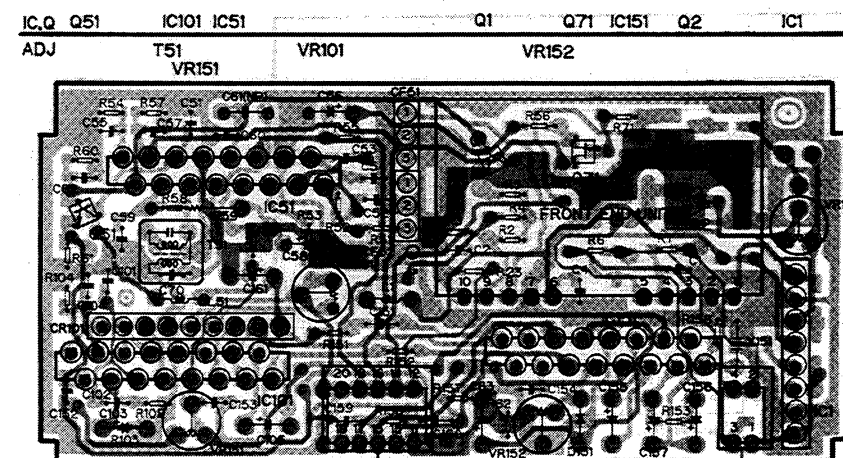
<http://www.manualscenter.com>

NOTE :
— Indicates a chip resistor.
— Indicates a chip capacitor.
— Indicates a chip transistor.

Fig. 5

8. CONNECTION DIAGRAM (TUNER DEH-55/UC)

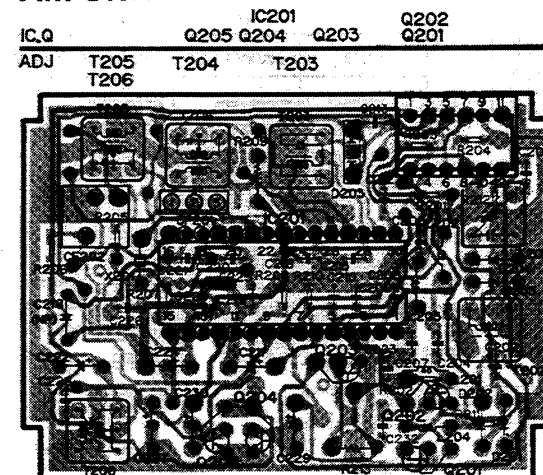
FM UNIT



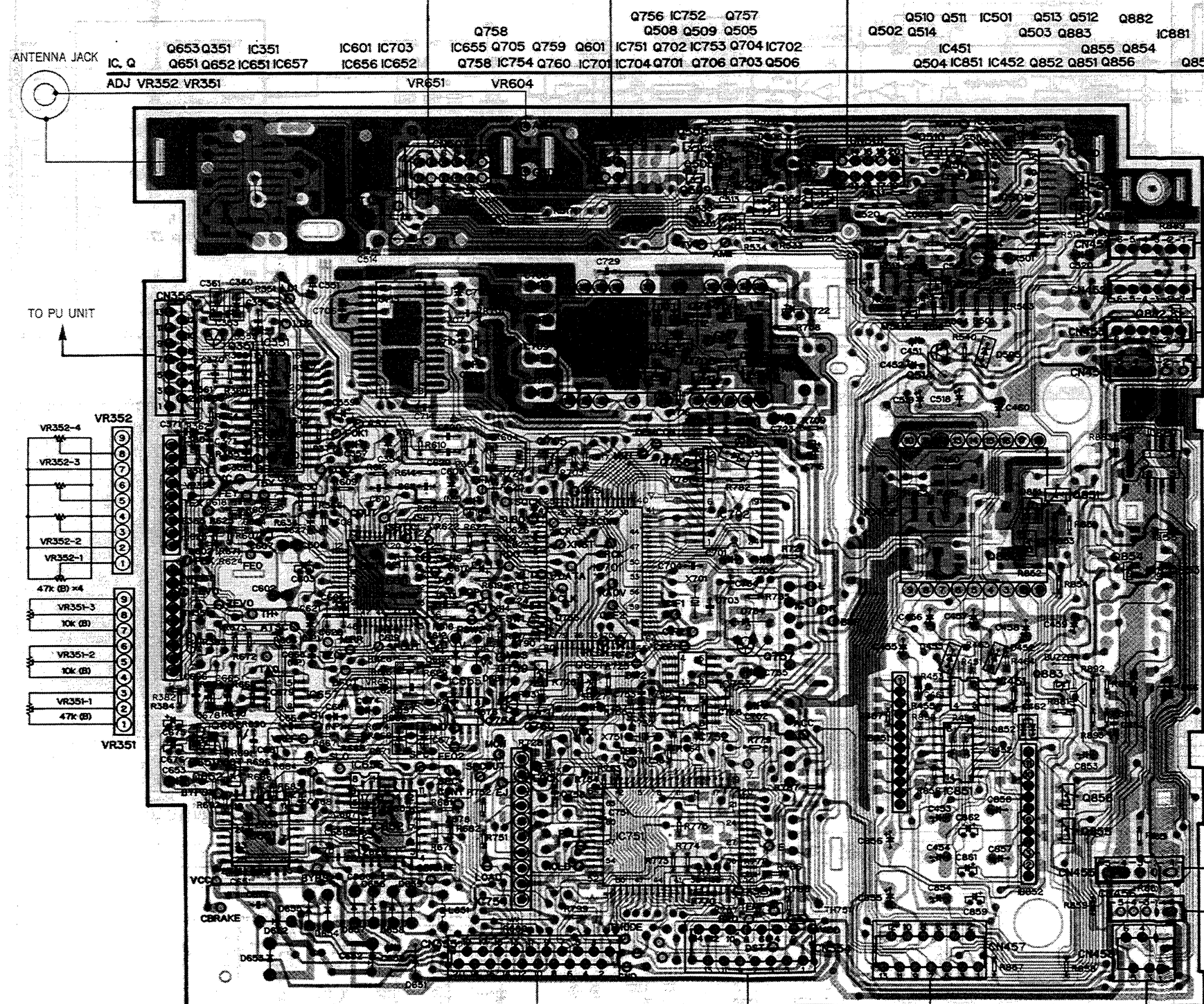
AM UNIT: IC201

1	2	3	4	5	6	7	8	9	10
3.4V	3.4V	0V				6.9V			
11	12	13	14	15	16	17	18	19	20
0V	2.3V	2.3V	8.5V	3.6V	3.6V	4.6V	4.0V	5.3V	4.8V
21	22	23	24	25	26	27	28	29	30
2.2V	8.2V	8.5V	3.3V	0V	8.2V	8.2V	5.4V	5.4V	

AM UNIT

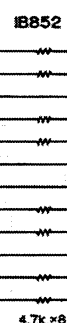
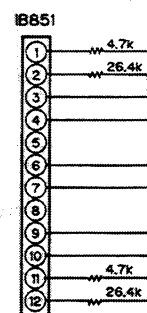
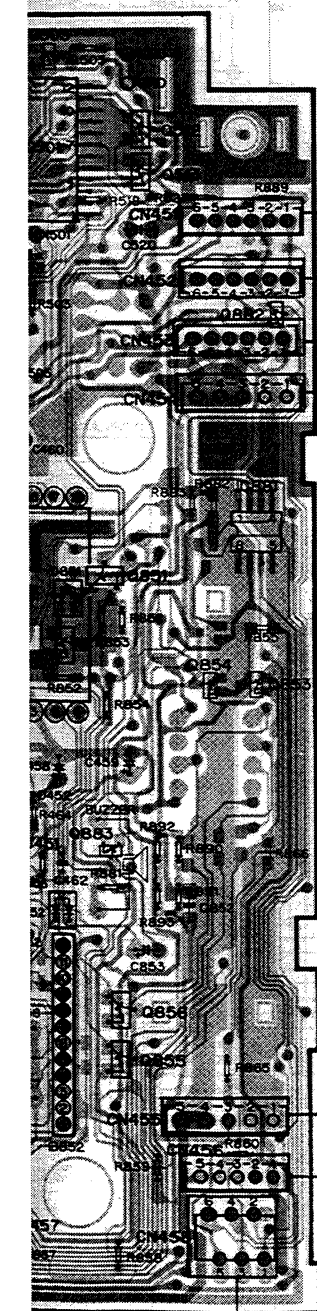


CD UNIT



<http://www.manualscenter.com>

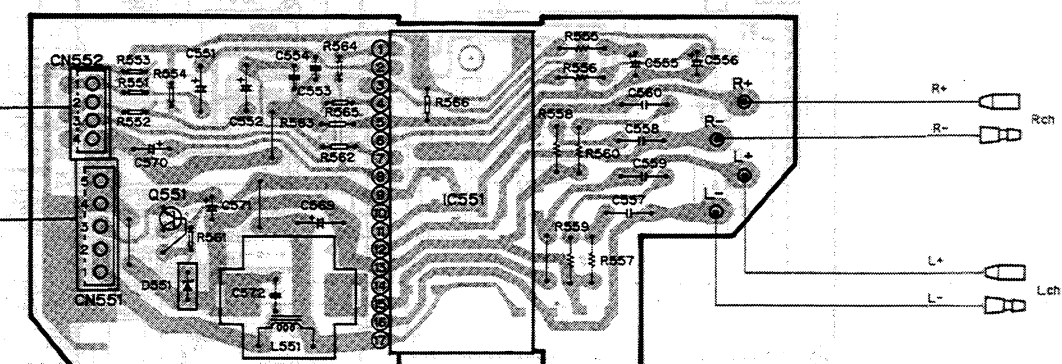
Q1 Q513 Q512 Q882
Q503 Q883 IC981
Q855 Q854
Q52 Q852 Q851 Q856 Q853



<http://www.manualscenter.com>

AMP UNIT

IC, Q Q551 IC551



POWER SUPPLY UNIT

Q958 IC953 Q955 Q957
IC, Q Q953 Q959 IC952 IC951 Q954 Q956 Q952 Q960 Q951

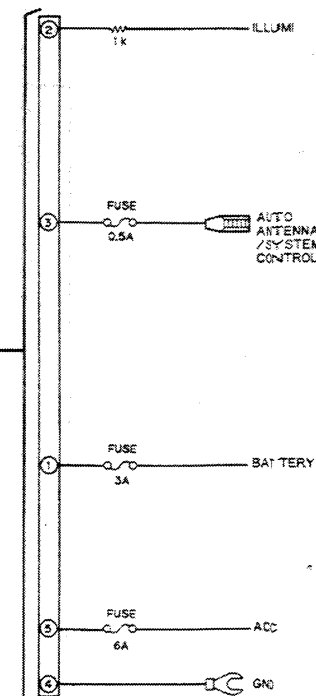
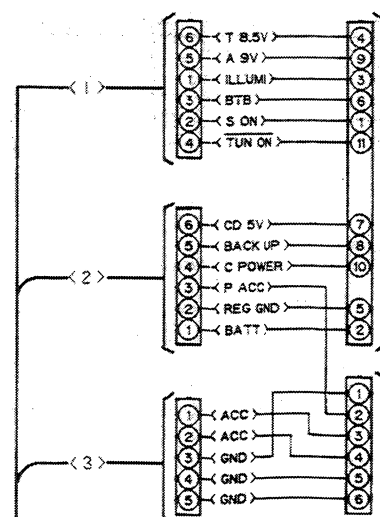


Fig. 6

6. CONNECTION DIAGRAM (TUNER DEH-55SDK/WG)

A

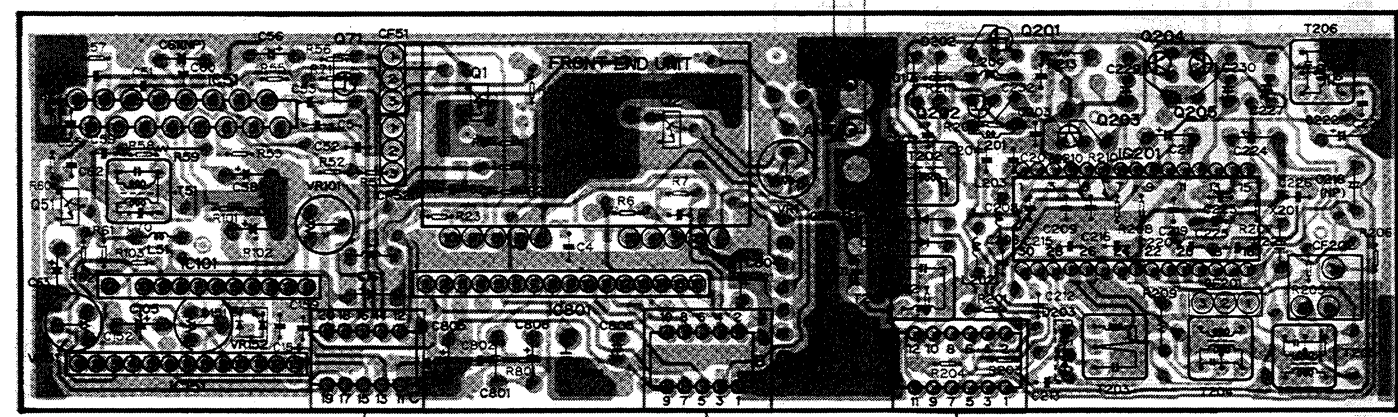
B

C

D

TUNER UNIT

IC: Q Q51 IC151 IC101 IC51 Q71 Q1 IC801 Q2 Q202 Q201 Q203 IC201 Q204 Q205 T203 T204 T205 T206
ADJ VR151 T51 VR152 VR101



TUNER UNIT : IC201

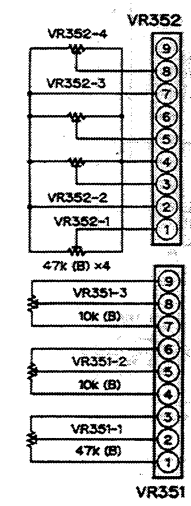
1	2	3	4	5	6	7	8	9	10
3.4V	3.4V	0V				6.9V			
11	12	13	14	15	16	17	18	19	20
0V	2.3V	2.3V	8.5V	3.6V	3.6V	4.6V	4.0V	5.3V	4.8V
21	22	23	24	25	26	27	28	29	30
8.2V	8.2V	8.5V	3.3V	0V	8.2V	8.2V	5.4V	5.4V	2.7V

<http://www.manualscenter.com>

CD UNIT

Q756 IC752 Q757 Q508 Q509 Q505
IC: Q Q653 Q351 IC351 IC601 IC703 IC655 Q705 Q759 Q601 IC751 Q702 IC753 Q704 IC702 Q758 IC754 Q760 IC701 IC704 Q701 Q706 Q703 Q506
ADJ VR352 VR351 VR651 VR604

TO PU UNIT



TO MECHANISM
P.C. BOARD

TO DISPLAY UNIT
CONNECTOR A

7. SCHEMATIC CIRCUIT DIAGRAM (TUNER DEH-55/10)

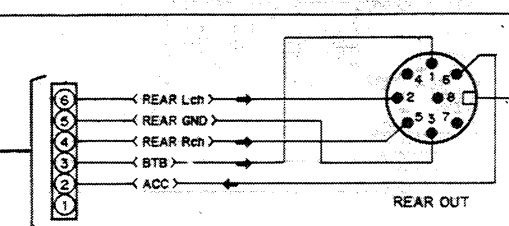
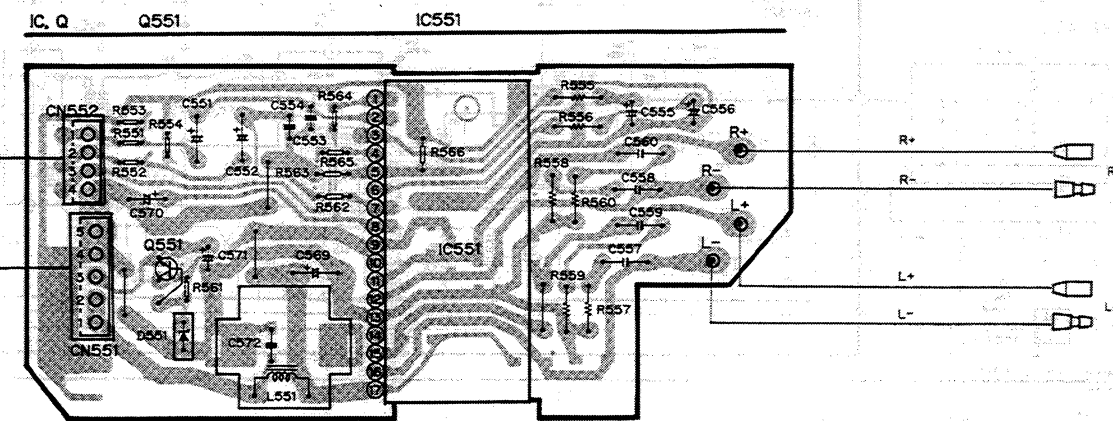
A

B

C

D

AMP UNIT



<http://www.manualscenter.com>

POWER SUPPLY UNIT

IC, Q Q958 IC953 Q955 Q957
Q953 Q959 IC952 IC951 Q954 Q956 Q952 Q960 Q951

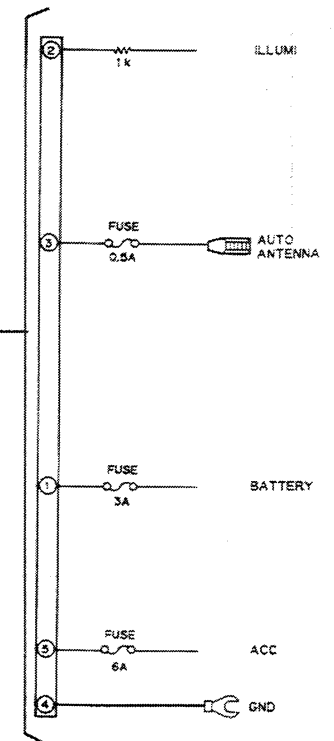
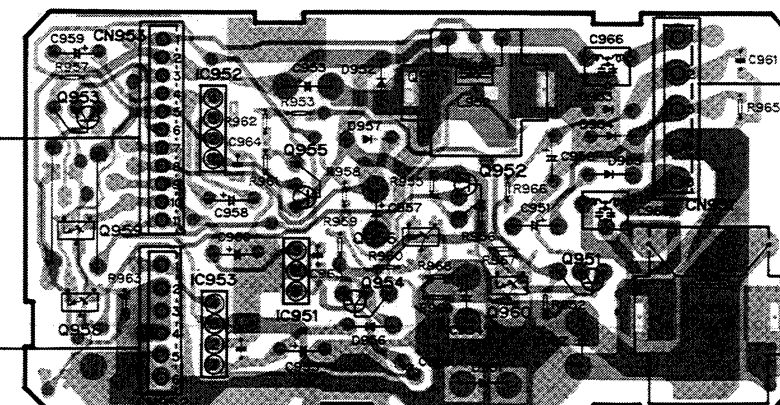
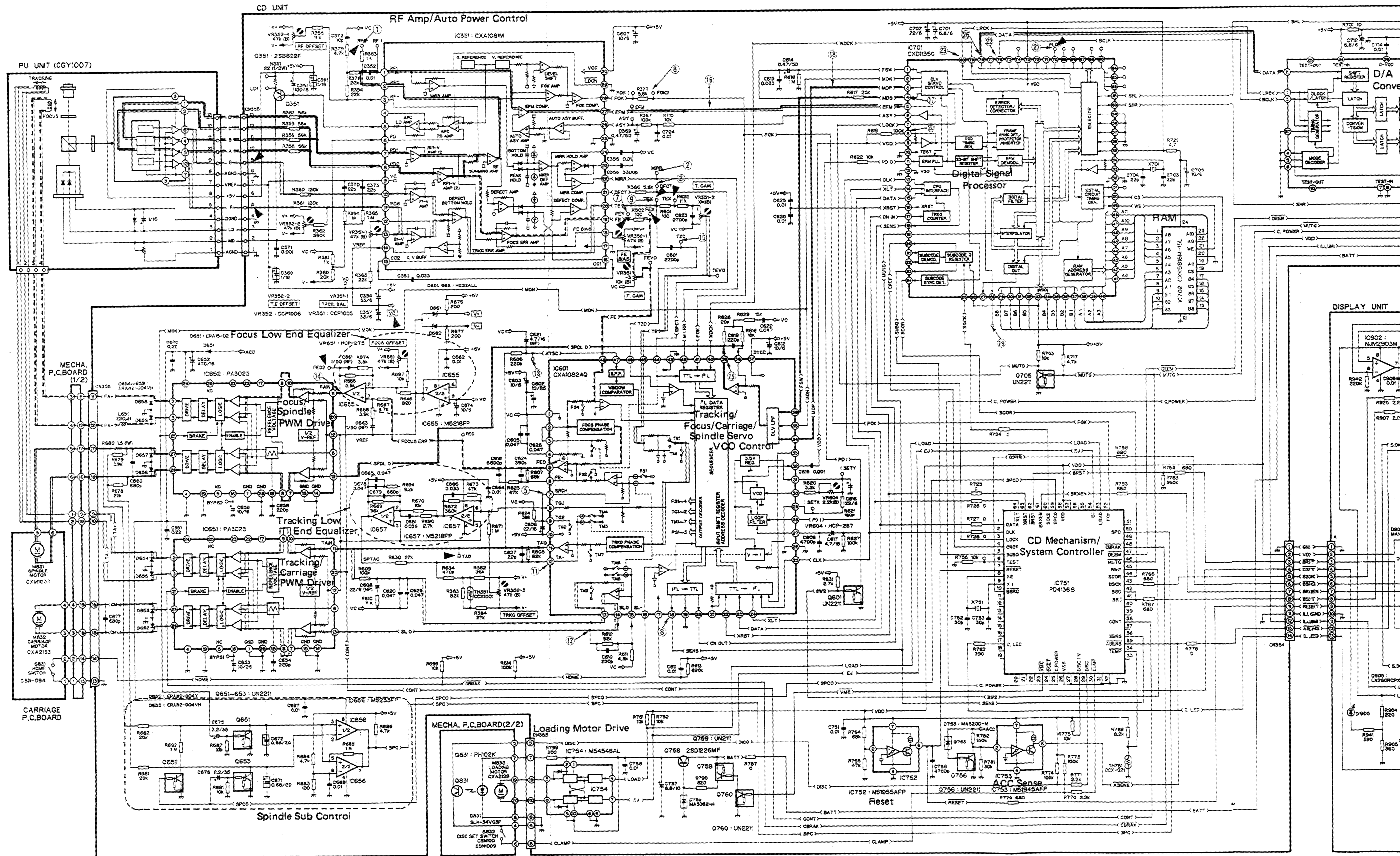
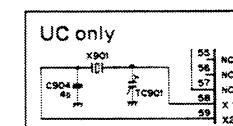
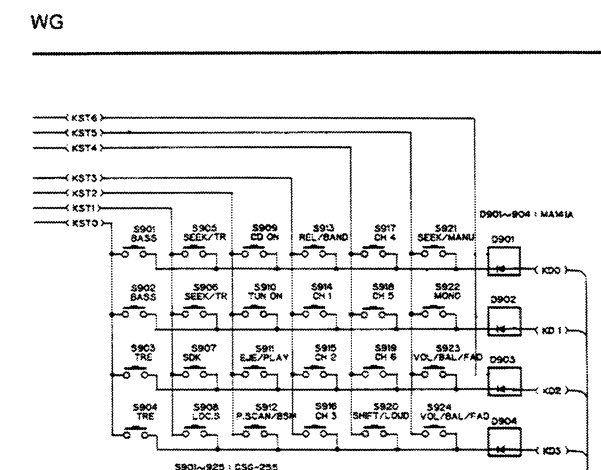
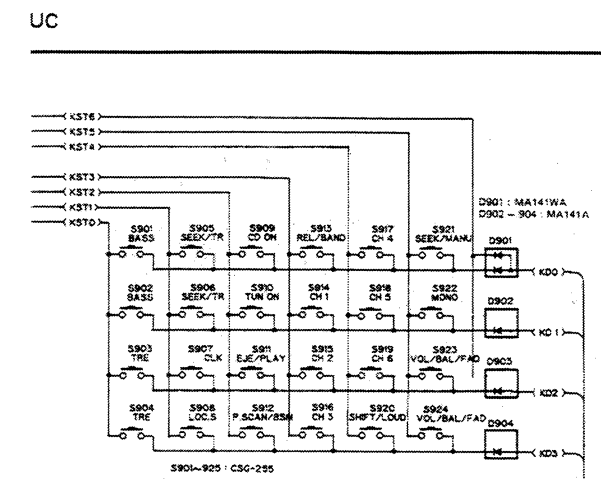
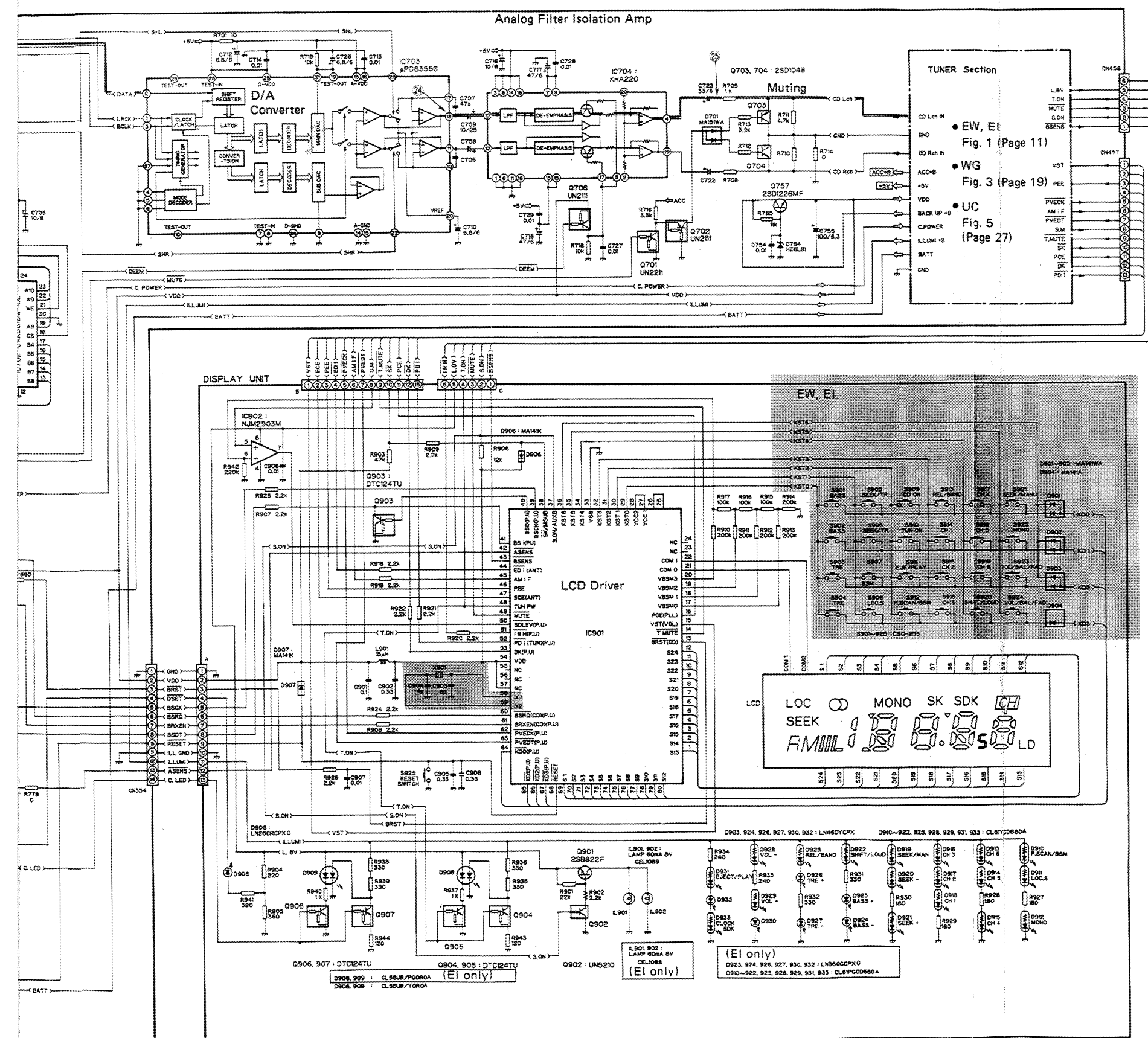


Fig. 4

DEH-55

9. SCHEMATIC CIRCUIT DIAGRAM (CD MECHANISM)





	UC	WG	EW	EI
LCD	CWW1161	CWW1203	CWW1203	CWW1162
IC901	PD4194	PD4195	PD4194	PD4194

NOTE:

- Indicates a chip resistor.
- Indicates a chip capacitor.
- Indicates a chip transistor.
- Indicates a chip diode.

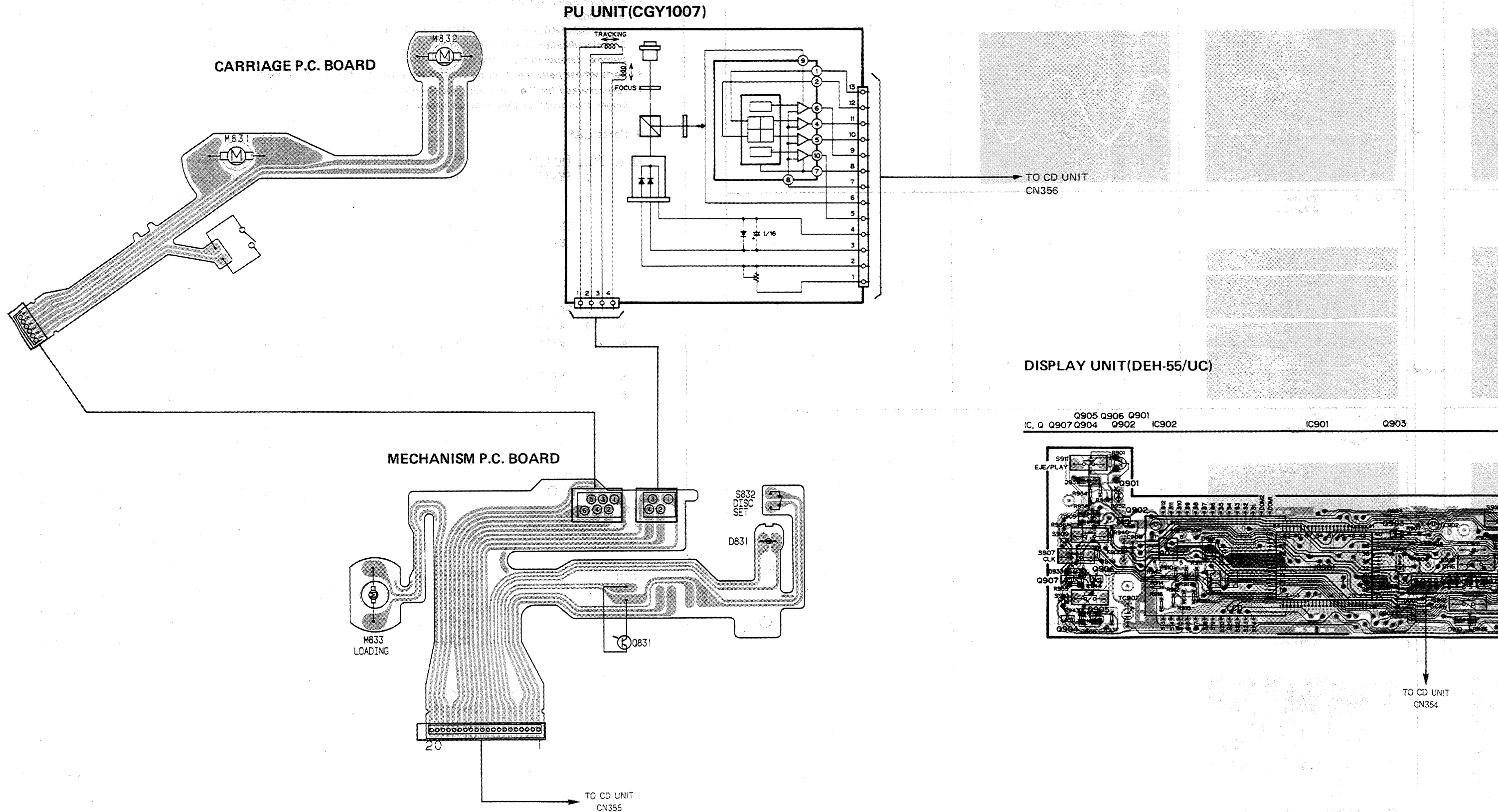
SWITCHES

S831: HOME SWITCH ON OFF
S832: DISC SET SWITCH ON OFF
The underlined indicates the switch position.

Fig. 7

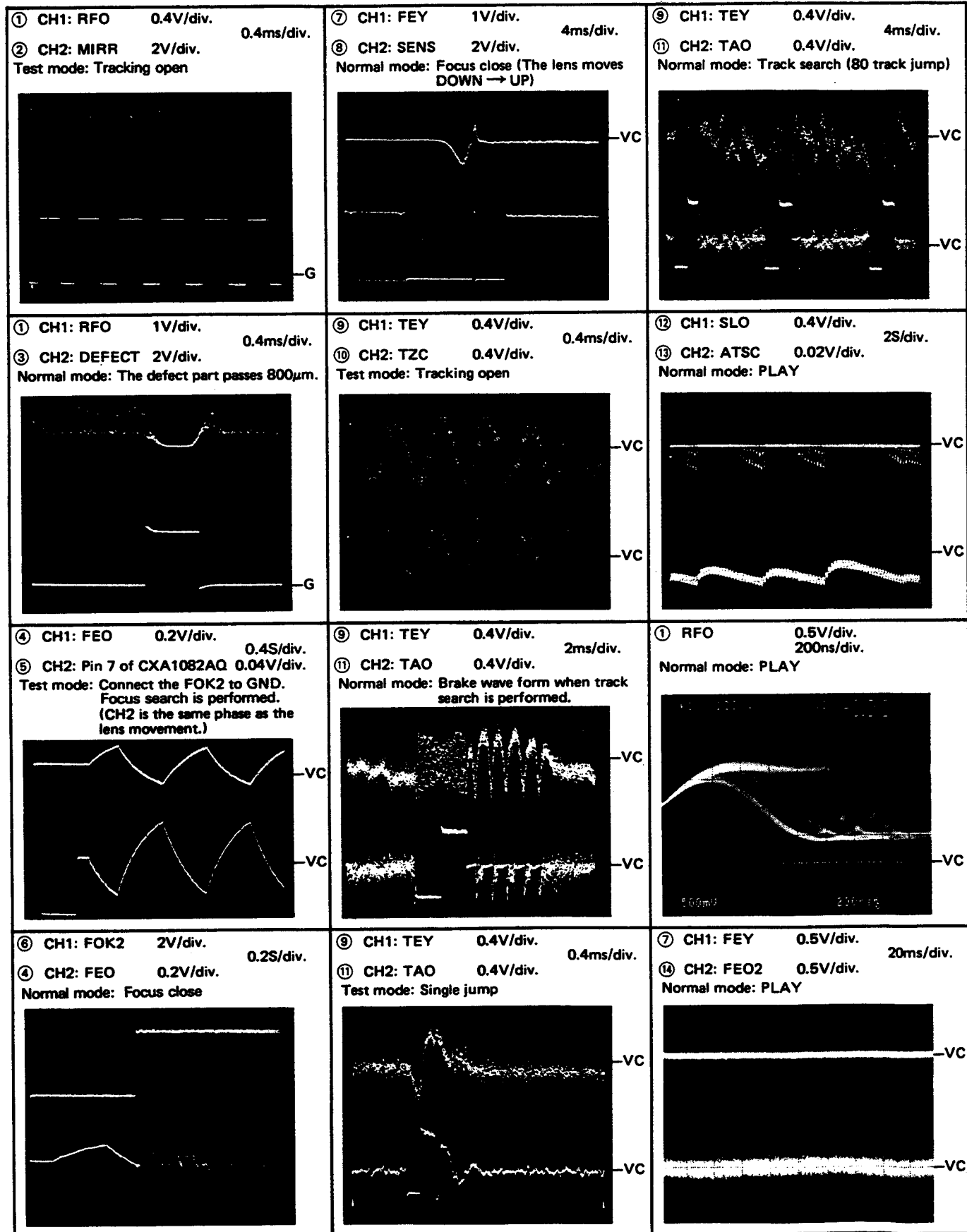
10. CONNECTION DIAGRAM (CD MECHANISM)

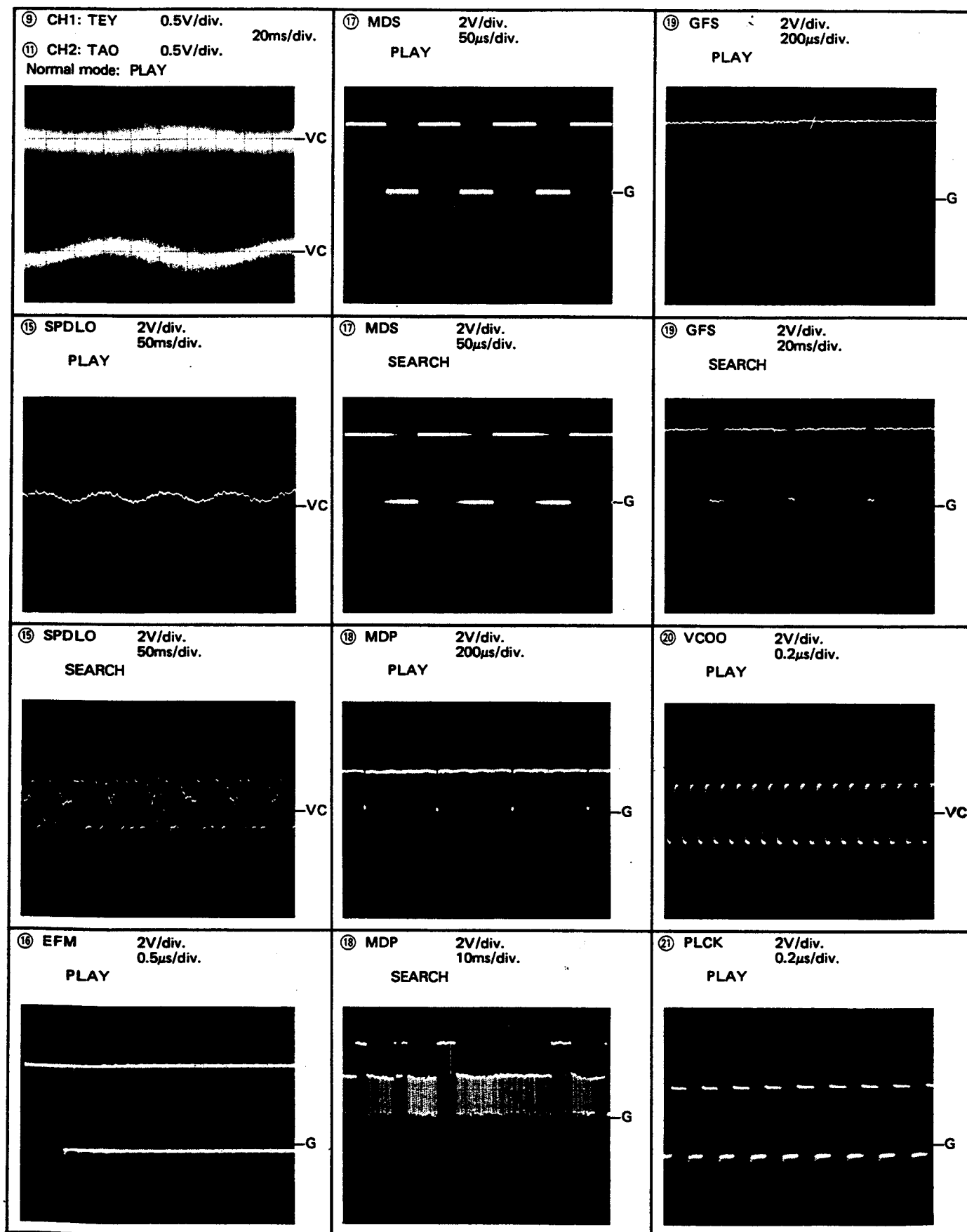
<http://www.manualscenter.com>

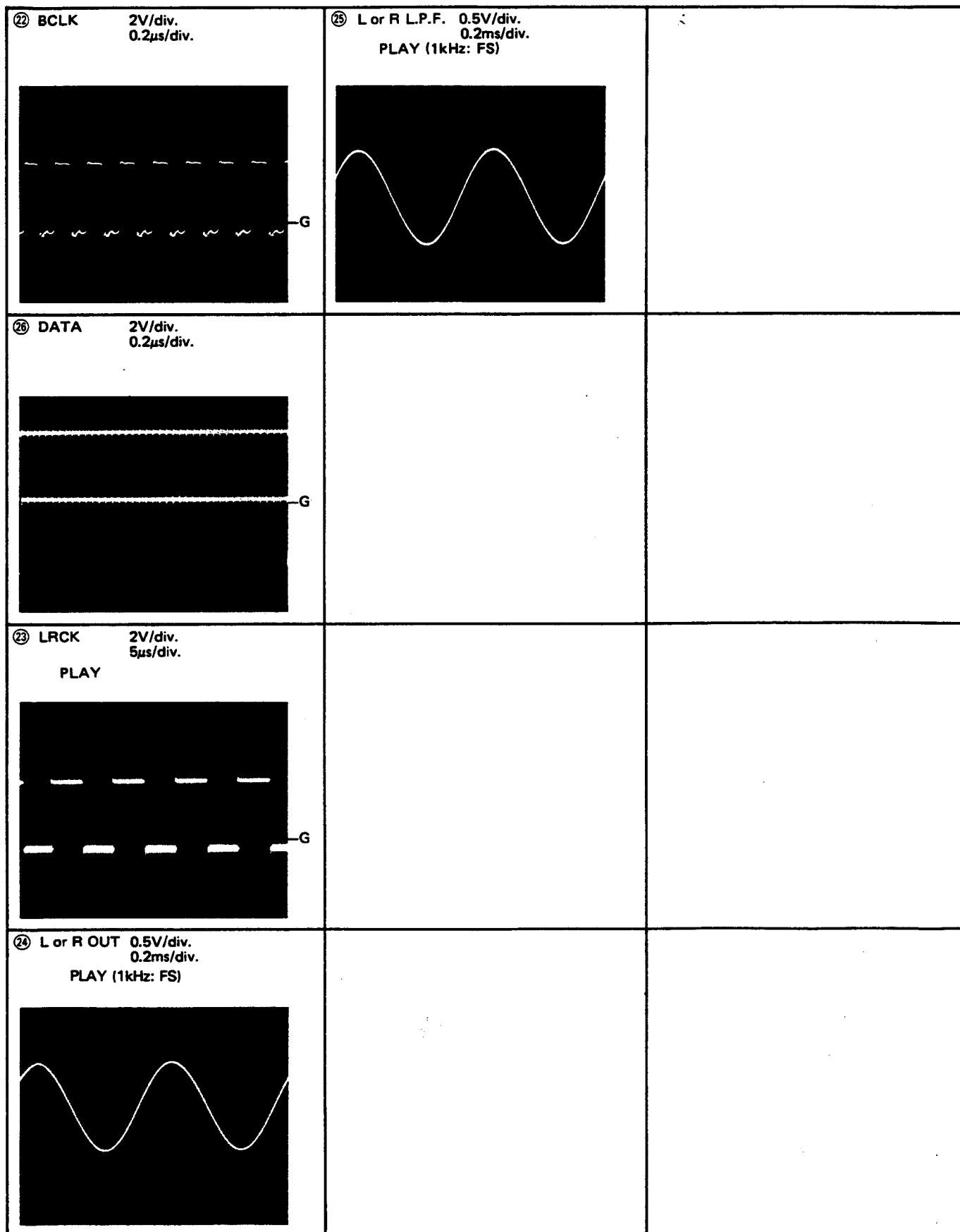


Note: 1. The encircled numbers denote measuring points in the circuit diagram.
 2. Reference voltage.
 G: GND VC: Pin 14 of CXA1081M (2.5V)

● Wave Forms







11. EXPLODED VIEW

NOTE:

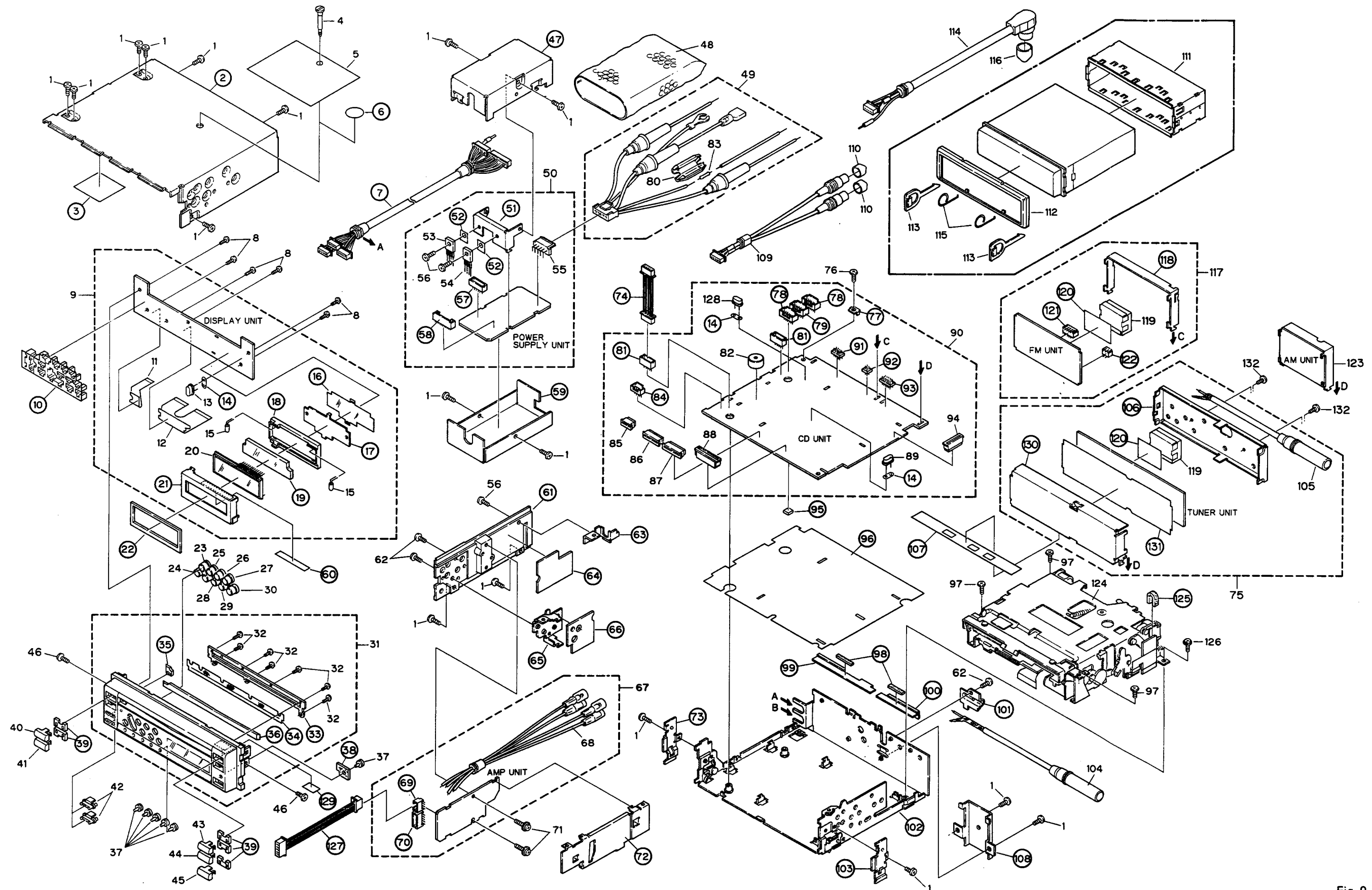
- For your Parts Stock Control, the fast moving items are indicated with the marks
★ ★ and ★.
★ ★: **GENERALLY MOVES FASTER THAN ★.**
This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts whose parts numbers are omitted are subject to being not supplied.
- Parts marked by "◎" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

• Parts List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1	BMZ30P050FMC	Screw	★	30	CAC1619	Button
	2		Case		31	CXA2790	Grille Unit(UC)
	3		Insulator			CXA2791	Grille Unit(EW, EI)
	4	CBA1094	Transportation Screw			CXA2792	Grille Unit(WG)
	5	CRP1031	Caution Card		32	PVZ14P045FZK	Screw
	6		Seal		33		Holder
	7		Cord		34		Cover
	8	BPZ20P050FMC	Screw		35		Lens
◎	9	CWX1182	Display Unit(UC)		36		Lens
◎		CWX1185	Display Unit(EW)	★	37	CAC1622	Button
◎		CWX1186	Display Unit(EI)		38		Cushion
◎		CWX1189	Display Unit(WG)		39		Cushion
	10		Cushion	★	40	CAC1608	Button
	11	CNP1656	P. C. Board	★	41	CAC1609	Button
	12	CNP1655	P. C. Board	★	42	CAC1613	Button
	13	CSS1023	Crystal	★	43	CAC1610	Button
	14		Insulator	★	44	CAC1611	Button
★★	15	CEL1089	Lamp(UC, EW, WG)	★	45	CAC1612	Button
★★		CEL1088	Lamp(EI)		46	PMS30P040FMC	Screw
	16		Film		47		Case
	17		Shield Plate		48	CEG1037	Cover
	18		Holder		49	CDE2324	Cord(UC)
	19		Lens			CDE1895	Cord(EW, EI, WG)
	20	CWW1161	LCD(UC)	◎	50	CWR1018	Power Supply Unit (UC)
		CWW1203	LCD(EW, WG)				
		CWW1162	LCD(EI)	◎		CWR1017	Power Supply Unit (EW, EI, WG)
	21		Case		51		Bracket
	22		Cushion		52		Insulator
★	23	CAC1621	Button	★★	53	AN7805R	IC
★	24	CAC1620	Button				
★	25	CAC1614	Button	★★	54	AN6540	IC
★	26	CAC1615	Button		55	CKS-462	Plug
★	27	CAC1616	Button		56	BMZ30P060FMC	Screw
★	28	CAC1617	Button		57		Plug
★	29	CAC1618	Button		58		Plug

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	59		Case		97	BMZ26P040FMC	Screw
	60		Insulator		98		Cushion
	61		Heat Sink		99		Plate
	62	BMZ30P040FMC	Screw		100		Plate
	63		Holder		101		Antenna Holder
	64		Film		102		Chassis Unit(UC)
	65		Holder				Chassis Unit(EW, EI)
	66		Film				Chassis Unit(WG)
⊙	67	CWH1056	Amp Unit		103		Side Cover
	68	CDE1771	Cord		104	CDH1068	Antenna Cable(UC, EW, EI)
	69		Plug		105	CDH1067	Antenna Cable(WG)
	70		Plug		106		Case(WG)
	71	PMS30P100FMC	Screw		107		Insulator(WG)
	72		Holder		108		Bracket
	73		Side Cover		109	CDE1775	Cord(UC)
	74		Connector		110	CNW-829	Cap(UC)
⊙	75	CWE1105	Tuner Unit(WG)		111	CNC1484	Holder
	76	BMZ30P040FMC	Screw(UC, EW, EI)		112	CNS1403	Panel
		PMS30P040FMC	Screw(WG)		113	CNC1631	Handle
	77		Holder(UC, EW, EI)		114	CDE1772	Cord(EW, EI, WG)
	78		Plug		115	CBH-865	Spring
	79		Plug		116	CNV1445	Cap(EW, EI, WG)
	80	CNS1472	Cap	⊙	117	CWE1096	FM Unit(UC)
	81		Plug	⊙		CWE1097	FM Unit(EW, EI)
	82	CPV1007	Buzzer		118		Holder(UC, EW, EI)
	83	RS1/2P102JL	Resistor		119	CWB1032	Front End Unit
	84		Plug		120		Insulator
	85	CKS1075	Connector		121		Connector(UC, EW, EI)
	86	CKS1082	Connector		122		Connector(UC, EW, EI)
	87	CKS1083	Connector	⊙	123	CWA1007	AM Unit(UC, EW, EI)
	88	CKS1415	Connector	⊙	124	CXK2200	CD Mechanism Unit
	89	CSS1027	Crystal		125		Cushion
⊙	90	CWX1181	CD Unit(UC)		126	PMF26P060FMC	Screw
⊙		CWX1184	CD Unit(EW, EI)		127		Connector
⊙		CWX1188	CD Unit(WG)		128	CSS1030	Crystal
	91		Plug		129		Plate
	92		Plug(4P...UC, EW, EI)		130		Case(WG)
			Plug(10P...WG)		131		Insulator(WG)
	93		Plug		132	BMZ30P050FMC	Screw(WG)
	94	CKS1328	Connector				
	95		Spacer				
	96		Insulator				

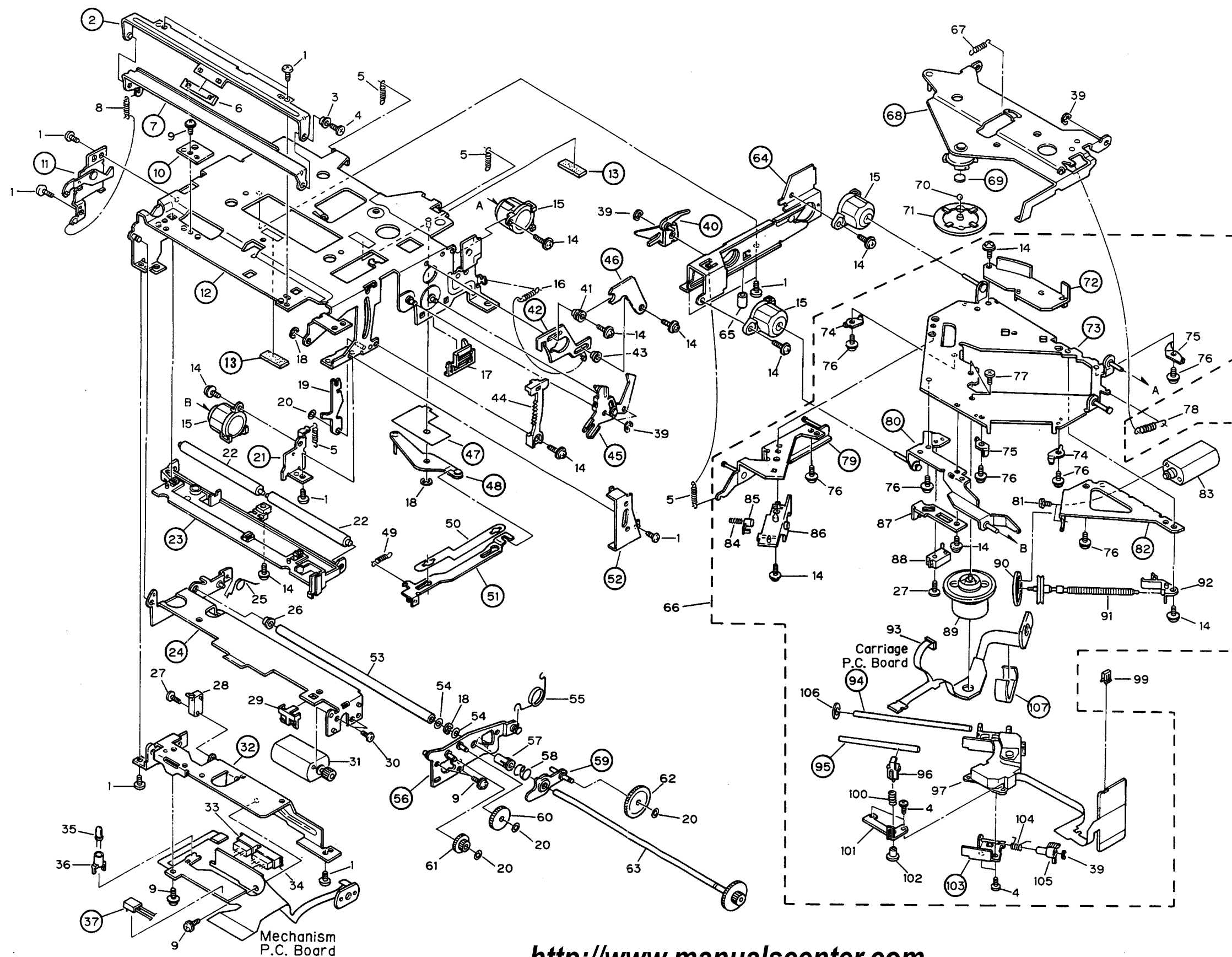
●Exploded View



<http://www.manualscenter.com>

Fig. 9

12. CD MECHANISM EXPLODED VIEW



<http://www.manualscenter.com>

Fig. 10

● Parts List

A

Mark	No.	Part No.	Description
	1	BMZ26P030FMC	Screw
	2		Bracket
	3	CLA1311	Collar
	4	CBA1062	Screw
	5	CBH1182	Spring
	6	CNV1641	Holder
	7		Arm
	8	CBH1137	Spring
	9	CBA1076	Screw
	10		P.C.Board

B

11		Bracket Unit
12		Chassis Unit
13		Cushion
14	CBA1075	Screw
15	CXA2148	Damper Unit

16	CBH1139	Spring
17	CNV1633	Holder
18	YE20FUC	Washer
19	CNV1631	Cam
20	CBF-166	Washer

21		Bracket
22	CNV1636	Roller
23		Guide
24		Arm Unit
25	CBH1135	Spring

C

★★

26	CNV1884	Bearing
27	CBA1070	Screw
28	CSN1009	Switch(Disc Set)
29	CNV1644	Holder
30	HBA-175	Screw

★★

31	CXA2129	Motor Unit(Loading)
32		Bracket
33	CKS-719	Connector
34	CKS-721	Connector
35	SLH-34VC3F	LED

★

36	CNV2061	Holder
37		Connector
38	CNP1711	P.C.Board
39	YE15FUC	Washer
40		Arm Unit

D

41	CLA1472	Collar
42		Lever
43	CLA1309	Collar
44	CNV1630	Gear
45		Arm Unit

Mark	No.	Part No.	Description
	46		Holder
	47		Spacer
	48		Arm Unit
	49	CBH1134	Spring
	50	CNM2152	Spacer
	51		Lever Unit
	52		Bracket
	53	CNV1634	Roller
	54	CBF1002	Washer
	55	CBH1133	Spring
	56		Bracket Unit
	57	CNV1632	Bearing
	58	CBH1181	Spring
	59		Arm Unit
	60	CNV1628	Gear
	61	CNV1627	Gear
	62	CNV1629	Gear
	63	CXA2456	Gear Unit
	64		Bracket Unit
	65	CNY-265	Cushion
◎	66	CXA1910	Carriage Unit
	67	CBH1136	Spring
	68		Arm Unit
	69		Spacer
	70	CNR1079	Ball
	71	CNV1643	Clamper
	72		Guide
	73		Chassis Unit
	74	CNC1738	Holder
	75	CNC1739	Holder
	76	PMS20P030FMC	Screw
	77	HBA-163	Screw
	78	CBH1138	Spring
	79		Bracket Unit
	80		Holder Unit
	81	CBA-098	Screw
	82		Bracket
★★	83	CXA2133	Motor Unit(Carriage)
	84	CBH1104	Spring
	85	CNV1844	Spacer
	86	CNV1780	Holder
	87	CNV1674	Holder
★★	88	CSN-094	Switch(Home)
★★	89	CXM1033	Motor Unit(Spindle)
★★	90	CNT1020	Belt

<u>Mark</u>	<u>No.</u>	<u>Part No.</u>	<u>Description</u>
	91	CXA2375	Screw Unit
	92	CNV1781	Holder
	93	CNP1709	P.C.Board
	94		Shaft
	95		Shaft
	96	CNV1512	Holder
	97	CGY1007	PU Unit
	98	
	99	CBL1010	Short Pin
	100	CBH1105	Spring

<u>Mark</u>	<u>No.</u>	<u>Part No.</u>	<u>Description</u>
	101	CNC1736	Holder
	102	CLA1319	Screw
	103		Holder Unit
	104	CBH1106	Spring
	105	CNV1513	Rack
	106	CNV1863	Cushion
	107		Cover

Service Manual

PIONEER
The future of sound and vision.

• DEH-66/UC



**ORDER NO.
CRT 1166**

HIGH-POWER COMPACT DISC PLAYER WITH FM/AM TUNER

DEH-66

DEH-66SDK

WG

UC, EW, EI

COMPACT
disc
DIGITAL AUDIO

Note:

- See the separate manual CX-173 (CRT1161) for the CD mechanism description.
- See the service manual CDX-M100 (CRT1136) for CD mechanism circuit description.

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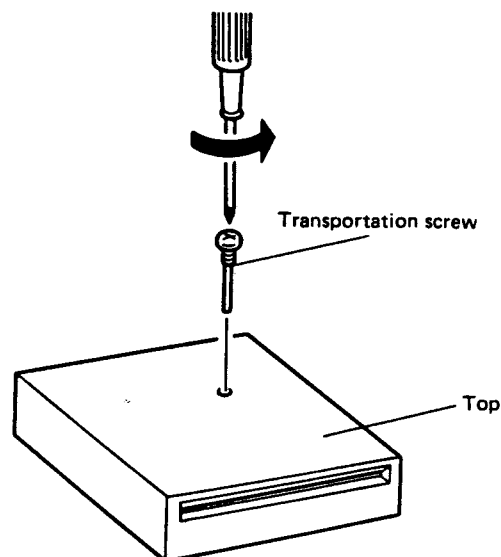
PIONEER ELECTRONIC [EUROPE] N.V. Keetberglaan 1, 2740 Beveren, Belgium

PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

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• CD Player Service Precautions

1. Since these screws protect the mechanism during transport, be sure to affix it when it is transported for repair, etc.
2. For pickup unit (CGY1007) handling, please refer to "Disassembly" (Fig. 4). During replacement, handling precautions shall be taken to prevent an electrostatic discharge (protection by a short pin).
3. During disassembly, be sure to turn the power off since an internal IC might be destroyed when a connector is plugged or unplugged.



1. SPECIFICATIONS

General

Power source	14.4 V DC (10.8–15.6 V allowable)
Grounding system	Negative type
Max. current consumption	5.0 A
Dimensions (chassis)	178 (W) × 50 (H) × 150 (D) mm [7 (W) × 2 (H) × 5-7/8 (D) in.]
(nose)	170 (W) × 46 (H) × 16 (D) mm [6-3/4 (W) × 1-3/4 (H) × 5/8 (D) in.]
Weight	1.8 kg (4 lbs.)

Amplifier

Continuous power output is 10 W per channel min. into 4 Ω, both channels driven 50 to 15,000 Hz with no more than 5 % THD.	
Max. power output	20 W + 20 W (EIAJ)
Load impedance	4 Ω (4–8 Ω allowable)
Max. output level/ output impedance (pre out)(UC)	500 mV/1 kΩ
Max. output level/ output impedance (pre out)(WG, EW, EI)	250 mV/1 kΩ
Tone controls (bass)	± 10 dB (100 Hz)
(treble)	± 10 dB (10 kHz)
Loudness contour	+ 10 dB (100 Hz), + 7 dB (10 kHz) (volume: - 30 dB)

CD Player

System	Compact disc audio system
Usable discs	Compact disc
Signal format	Sampling frequency: 44.1 kHz Number of quantization bits: 16; linear
Frequency characteristics	5–20,000 Hz (± 1 dB)
Signal-to-noise ratio	85 dB (1 kHz) (IEC-A network)
Dynamic range	87 dB (1 kHz)
Wow and flutter	Below measurement range
Distortion factor	0.008% (1 kHz, 0 dB)
Number of channels	2 (stereo)

• UC

FM tuner

Frequency range	(0.2 MHz channel step) 87.9–107.9 MHz
(50 kHz channel step)	87.5–108 MHz
Usable sensitivity	12 dBf (1.1 μV/75 Ω, mono)
50 dB quieting sensitivity	17 dBf (1.9 μV/75 Ω, mono)
Signal-to-noise ratio	70 dB (IHF-A network)
Distortion	0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response	30–15,000 Hz (± 3 dB)
Stereo separation	40 dB (at 65 dBf, 1 kHz)
Selectivity	70 dB (2ACA) (± 400 kHz)

AM tuner

Frequency range	(10 kHz channel step) 530–1,620 kHz
(9 kHz channel step)	531–1,602 kHz
Usable sensitivity	18 μV (25 dB) (S/N: 20 dB)
Selectivity (10 kHz channel step)	50 dB (± 10 kHz)
(9 kHz channel step)	50 dB (± 9 kHz)

• WG, EW, EI

FM tuner

Frequency range	87.5–108 MHz
Usable sensitivity	12 dBf (1.1 μV/75 Ω, mono)
50 dB quieting sensitivity	17 dBf (1.9 μV/75 Ω, mono)
Signal-to-noise ratio	70 dB (IEC-A network)
Distortion	0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response	30–15,000 Hz (± 3 dB)
Stereo separation	40 dB (at 65 dBf, 1 kHz)

MW tuner

Frequency range	531–1,602 kHz
Usable sensitivity	18 μV (25 dB) (S/N: 20 dB)
Selectivity	50 dB (± 9 kHz)

LW tuner

Frequency range	153–281 kHz
Usable sensitivity	30 μV (30 dB) (S/N: 20 dB)
Selectivity	50 dB (± 1 kHz)

These specifications were determined and are presented in accordance with specification standards established by the Ad Hoc Committee of Car Stereo Manufacturers.

Note:

Specifications and the design are subject to possible modification without notice due to improvements.

2. SAFETY INFORMATION (DEH-66/EW, EI)

1. Safety Precautions for those who Service this Unit.

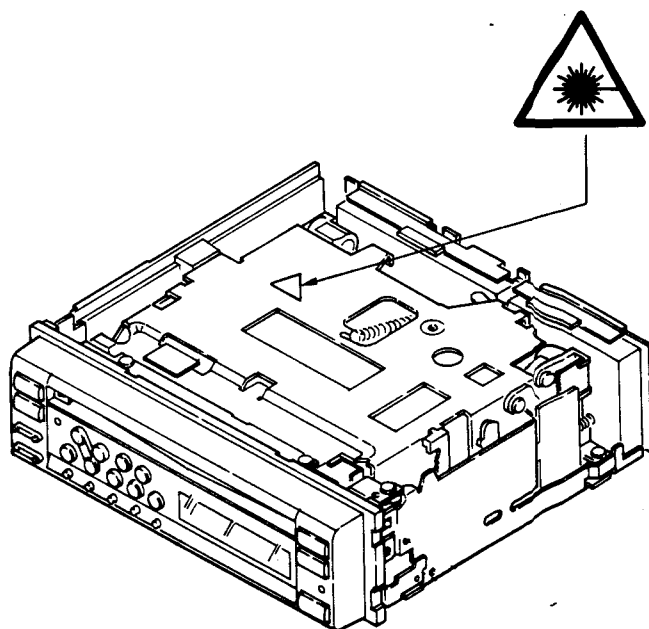
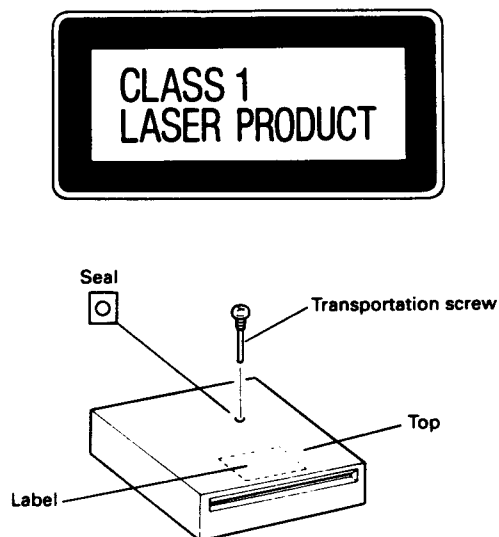
- Follow the adjustment steps (see pages 10 through 31) in the service manual when servicing this unit. When checking or adjusting the emitting power of the laser diode exercise caution in order to get safe, reliable results.

Caution:

1. During repair or tests, minimum distance of 13cm from the focus lens must be kept.
2. During repair or tests, do not view laser beam for 10 seconds or longer.

2. A "CLASS 1 LASER PRODUCT" label is affixed to the bottom of the player.

3. The triangular label is attached to the mechanism unit plate unit.



4. Specifications of Laser Diode

Specifications of laser radiation fields to which human access is possible during service.

- | | |
|---------------|--------------------------------------|
| Wavelength | = 780 nanometers |
| Radiant power | = 69.7 microwatts |
| | (Through a circular aperture stop |
| | having a diameter of 80 millimeters) |
| | 0.55 microwatts |
| | (Through a circular aperture stop |
| | having a diameter of 7 millimeters) |

3. CHANGING THE TUNING STEPS (DEH-66/UC)



Changing The Tuning Steps

The unit is shipped from the factory preset for 10 kHz steps in AM and 0.2 MHz steps in FM. The following procedure should be used for applications outside of North America, Central America and South America to change the tuning steps and frequency ranges.

1. Turn the ignition switch off.
2. While pressing both the (+) and the (-) sides of button ①, turn the ignition switch on. It should be noted that changing the tuning steps also deletes frequencies stored in the tuning memories.

	Specification	Initial setting	New setting
AM	Tuning steps	10 kHz steps	9 kHz steps
	Frequency range	530 – 1,620 kHz	531 – 1,602 kHz
FM	Tuning steps	0.2 MHz steps	50 kHz steps
	Frequency range	87.9 – 107.9 MHz	87.5 – 108 MHz

4. SECRET CODE

This unit is equipped with a secret code function. The secret code (4-digit) electronically locks the unit to reduce the danger of theft.

The code is preset to 0000 at the time of purchase, and the unit can be used normally without altering the code as preset. It is recommended, however, that the user change the code to another value to take full advantage of the anti-theft properties of this system.

Once a code is set, the unit will operate normally without input of the secret code, even if the ignition of the vehicle is switched OFF and then ON again. Should power to the unit be interrupted due to a battery change, repairs, however, the unit will fail to operate when power is restored unless the preset secret code is first entered. Three consecutive wrong inputs of the code will cause the unit to lock electronically and accept no input of code for three hours. Once operation is restored, three more wrong code inputs result in another three hours of electronic lock up. This feature helps to prevent breaking of the secret code through sequential or random input. These features mean that once the power supplied to the unit is completely cut, further operation is impossible except for those who know the secret code. This makes the unit unusable if stolen, thus reducing the danger of theft.

- When taking the unit to a service station for repair, be sure to either tell the service personnel of the registered code or return the value to 0000.
- Should you forget your registered secret number, consult your local service station taking along such proof of purchase and ownership as the original receipt, etc.

Accessory Sticker and Card

- Affix the sticker on a window of the vehicle in which the unit is installed to inform potential thieves of the anti-theft function of the unit.
- Write the secret code, unit model number, and unit serial number on the card and store it in a safe place outside of the vehicle itself. The serial number of this device is located on the bottom of the unit. This information can then be made available to the police and your PIONEER service station should your unit be stolen.

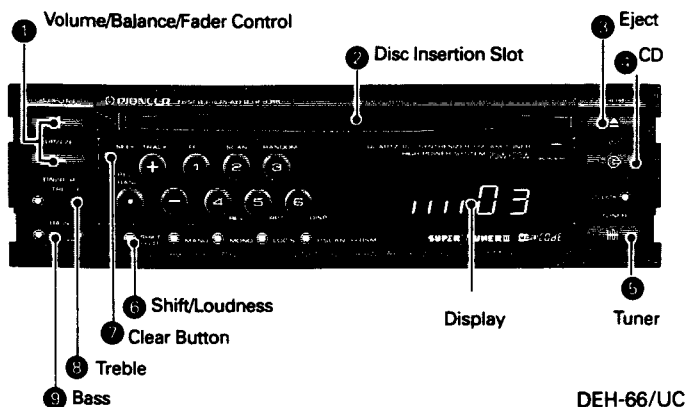
• UC



• WG, EW, EI



5. ADJUSTING VOLUME AND TONE



Using the Clear button

Once all wiring is complete, press button 6 with a thin, pointed object. Though not a normal occurrence, the microprocessor which controls the operation of this unit can be affected by electrostatic noise. This generally is indicated by such symptoms as no power being supplied when you switch the unit on, failure of buttons and controls, or an abnormal display. Should this happen, press button 6 with a thin, pointed object to reset the microprocessor. Note that doing so also resets all audio controls, so you will have to make any desired settings again. This operation deletes all memory contents, such as frequencies stored in the preset memory, so you will have to make any desired settings again. Pressing this button causes the message **C D E** to appear on the display. Input the previously registered secret code at this time.

Switching Power On

Tuner

Press button 10 to switch the tuner power on. Press button 10 again to switch the power off.

CD Player

When a disc is inserted half-way into the disc insertion slot 2 with its label side upward, the disc is automatically loaded and played. Press button 3 to stop play. Press button 3 again to restart play from the beginning of the track at which play was stopped.

To eject the disc, press button 3.

- To change from disc mode to tuner mode, press button 10.
- To change from tuner mode to disc mode, press button 3.
- When the power is switched on, the display shows the volume for about 2 seconds.

Adjusting Volume, Balance and Fader

When the display indicates disc or tuner, press button 1 to adjust the volume. Each press of button 1 changes the display and the function of button 1 as follows:

Volume → Balance → Fader

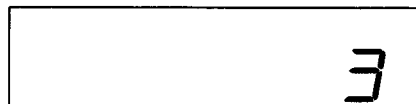
Adjusting Bass and Treble

Adjusting Bass

Pressing the (+) side of button 8 increases bass, while the (-) side decreases bass.

Adjusting Treble

Pressing the (+) side of button 7 increases treble, while the (-) side decreases treble.



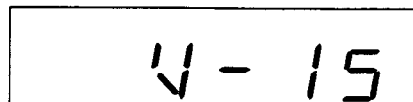
- When you're adjusting balance, fader, bass, or treble settings, the indicator will stop at the center setting. About 3 seconds after adjustment has been made, the display returns to its previous state.

Using the Loudness Function

Press button 5 for about two seconds and the "LD" indication will appear on the display. This loudness function lets you enhance both high and low frequencies to give a more natural sound at low volumes. To cancel this function, press button 5 again for about two seconds.

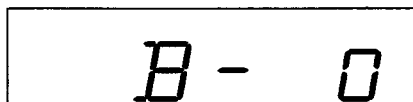
Adjusting Volume

Pressing the (+) side of button 1 increases the volume, while the (-) side decreases it.



Adjusting Balance

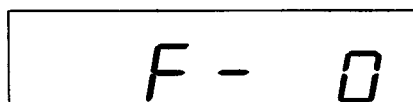
Pressing the (+) side of button 1 shifts the balance to the left speaker, while the (-) side shifts it to the right speaker.



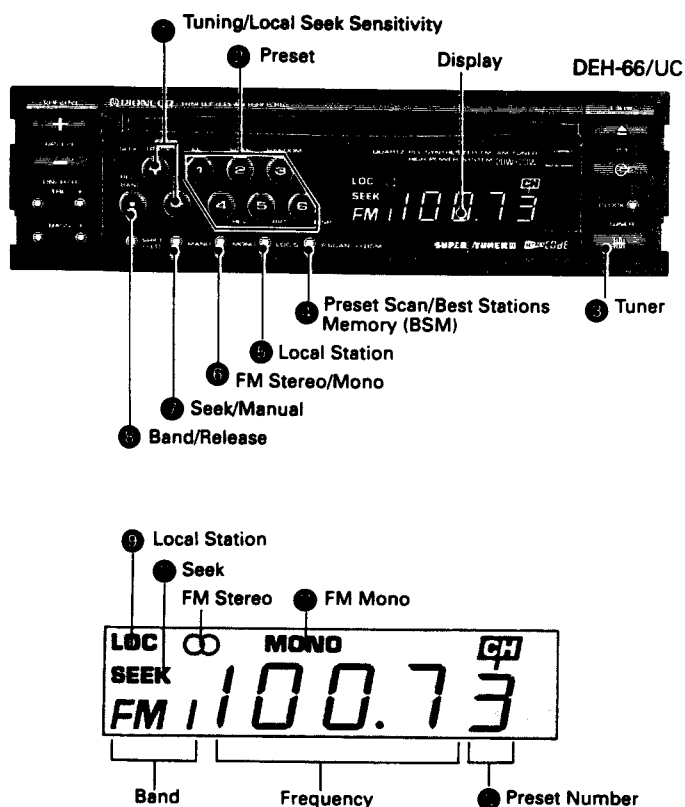
Adjusting the Fader

This function controls the balance between the front and rear speakers of a 4-speaker system. Pressing the (+) side of button 1 shifts the balance to the front speakers, while the (-) side shifts it to the rear speakers.

For 2-speaker systems, set F-0.



6. USING THE TUNER



1 Press button ③ to switch the tuner power on.

2 Press button ④ to select a band.

FMI—**FMII**—**FMIII**—**AM(M)**
(FM1) (FM2) (FM3)

3 Use seek tuning to tune in a frequency.

Confirm that the "SEEK" indicator ⑤ is shown on the display (if not, press button ⑤).

Press the (+) side of button ⑤ to automatically tune in the next higher receivable frequency, and the (–) side for a lower frequency.

4 Adjust volume and tone (see page 4).

5 Assign the tuned frequency to one of the buttons in bank ② (preset memory).

Press and hold down one of the buttons in bank ② for at least two seconds. The frequency is assigned to the selected button when the preset number ⑥ stops flashing on the display. Up to 18 FM stations (6 each for FMI, FMII and FMIII), and six AM stations can be assigned to the preset memory buttons in bank ②.

6 Once a frequency is assigned to a button in bank ②, you just need to press that button to tune it in.

This also causes the number of the button pressed to appear at position ⑦ on the display.

Preset Scan Tuning

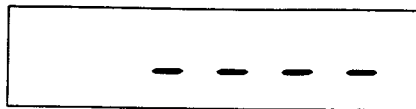
This function lets you automatically monitor the stations assigned to the preset buttons.

- Press button ③ to make the channel ("CH") of the preset number ⑥ flash on the display. Each station assigned to the buttons in bank ② will be automatically tuned in for about eight seconds.
- When you hear a station that you like, press button ③ again to cancel preset scan tuning and remain at that station.

BSM (Best Stations Memory)

This function automatically locates stronger stations and automatically assigns their frequencies to the buttons in bank ②, from strongest to weakest. It comes in handy when trying to find local stations while driving.

- Press button ③ and select a band.
- Hold down button ③. After about two seconds, a "beep" will sound to signal that the BSM search has started. At this time, "----" will flash on the display.



- The frequency display will return once BSM search is complete, and frequencies are assigned to buttons 1 through 6 in bank ②.
- At the end of the BSM search, the displayed frequency is that assigned to button ① of bank ②.
- If there are fewer than six strong stations in the area, some of the buttons in bank ② will not be assigned frequencies, so they will retain any frequencies assigned to them previously.
- BSM search may take as long as 30 seconds in areas where there are few strong stations.
- You can cancel BSM search by pressing button ③.

Manual Tuning

Use manual tuning when stations are too weak to be picked up by seek tuning.

- Press button ③ to turn "SEEK" indicator ⑤ off.
- Each press of the (+) side of button ⑤ increases the frequency in 0.2 MHz steps in the FM band, 10 kHz in the AM band. Pressing the (–) side of button ⑤ decreases the frequency. Holding down either side of button ⑤ changes the frequency at high speed.
- FM frequencies are tuned in 50 kHz steps and AM frequencies in 9 kHz steps after the tuning steps are changed.

Switching between FM Stereo and Mono

Generally, it is best to allow the "Super Tuner III" function to automatically set the optimum listening conditions. When there is a large amount of noise, you can press button ⑥ for clearer, mono reception ("MONO" ⑥ will appear on the display).

Adjusting Seek Sensitivity

The seek tuning function of this tuner lets you select between a local setting for reception of strong stations only, and a DX (distant) setting for reception of weaker stations. The local setting also has four seek tuning sensitivity levels for FM and two levels for AM to match local conditions.

Changing the Local Seek Sensitivity

- Use button ③ to select a band.
- Hold down button ③ for more than two seconds to change to the local seek sensitivity display.



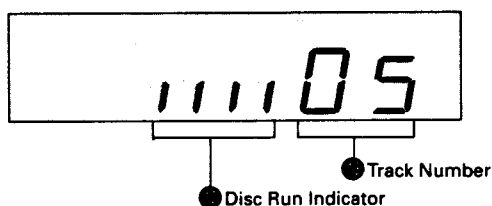
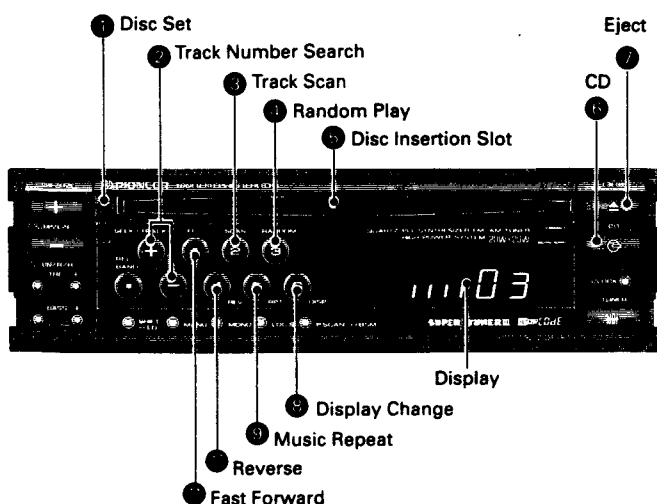
(Example: LOC2)

- While still holding down button ③, press the (+) side of button ① to increase the sensitivity level, and the (–) side to decrease the level as shown below.
FM : LOC1 ⇌ LOC2 ⇌ LOC3 ⇌ LOC4
AM : LOC1 ⇌ LOC2
The LOC4 setting allows reception of only the strongest stations, while lower settings let you receive progressively weaker stations.

Switching Between Local and DX

Press button ③ to switch between Local and DX (distant) seek tuning. When "LOC" ⑥ is shown on the display, seek tuning is performed with the local seek sensitivity. Otherwise, seek tuning is performed with the DX seek sensitivity.

7. PLAYING COMPACT DISCS



1 When a disc is inserted half-way into the disc insertion slot ⑤ with its label side upward, the disc is automatically loaded and played.

(Track number ② and disc run ① indications will appear on the display.)

2 Use track number search to select a track.

Press the (+) side of button ② to increase the number at position ②, or the (-) side to decrease the number. Holding either side of button ② down changes the track number at high speed.

3 Adjust volume and tone (see page 4).

4 To stop CD play, press button ⑥.

You can restart CD play from the beginning of the track at which play was stopped by pressing button ⑥.

5 To eject or change the disc, press button ⑦.

If an ejected disc is pushed back into the slot, it will be loaded and played again.

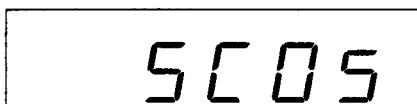
Note:

- It takes a short time after a disc is loaded before it is played. This is because the CD player requires a setup time to read digital signals from the disc.
- When ► ① is displayed, a disc is loaded. If another disc is inserted into the slot at this time, the discs may be damaged or the player may malfunction.
- Do not insert two discs into the slot at the same time. This may cause a malfunction.

Using Track Scan

This function lets you scan through the tracks on a disc by playing only the first ten seconds of each track.

1. Press button ③ ("SC" will flash).

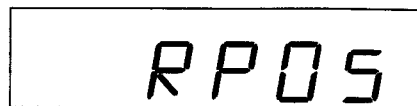


2. To cancel track scan and continue play at the current track, press button ③ again.
- After track scan plays through all of the tracks, disc play resumes from the beginning of the track from which track scan was started.

Using Music Repeat

This function lets you listen to a track as many times as you wish.

1. While the track you want to repeat is playing, press button ④. "RP" will appear on the display. Now the track will repeat until the music repeat function is canceled.

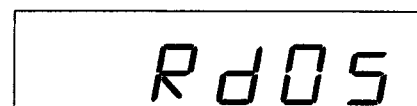


2. To cancel music repeat, press button ④ again.
- When music repeat is not operational, the whole disc will be played repeatedly.

Using Random Play

This function uses the built-in microprocessor to randomly play tracks from the disc.

1. Press button ⑤. "Rd" will appear on the display. Once the current track has been played, the microprocessor will randomly select the next track.



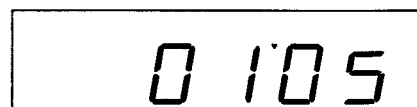
2. To cancel random play, press button ⑤ again.
- When the display shows the amount of elapsed disc-play time, it does not show "RP" or "Rd".

Using Fast Forward and Reverse

Press button ⑩ for fast forward, and button ⑪ for reverse. You can hear the recorded sound during fast forward and reverse.

Amount of Elapsed Disc-Play Time

Press button ⑧ to make the display show the amount of elapsed disc-play time. Press button ⑧ again to return to the normal display.



- When a disc in which there are several seconds between tracks is used, the amount of elapsed disc-play time is shown, for example, as -'02 and -'01.

Last Track Memory

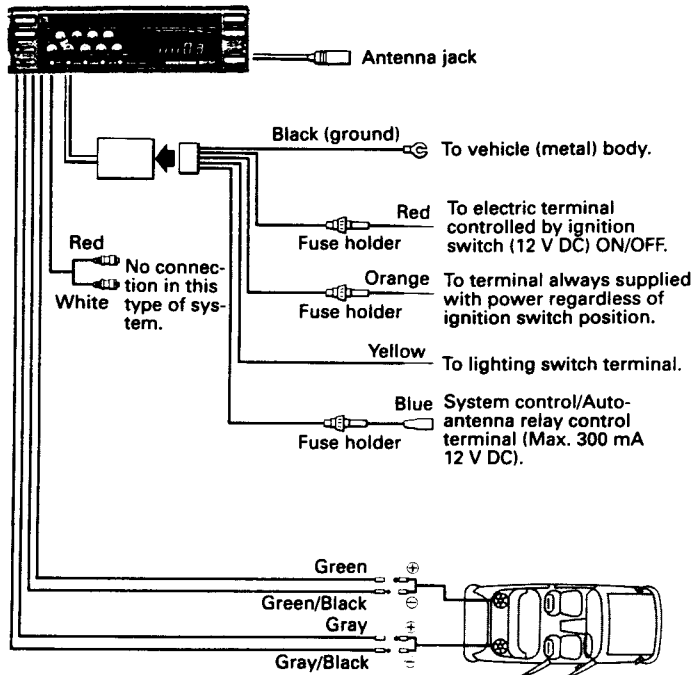
This player has a last track memory to restart play from the beginning of the track being played when the disc was stopped, ejected, and then loaded again.

- When the disc is replaced with another, this function does not work, and play starts from the first track.

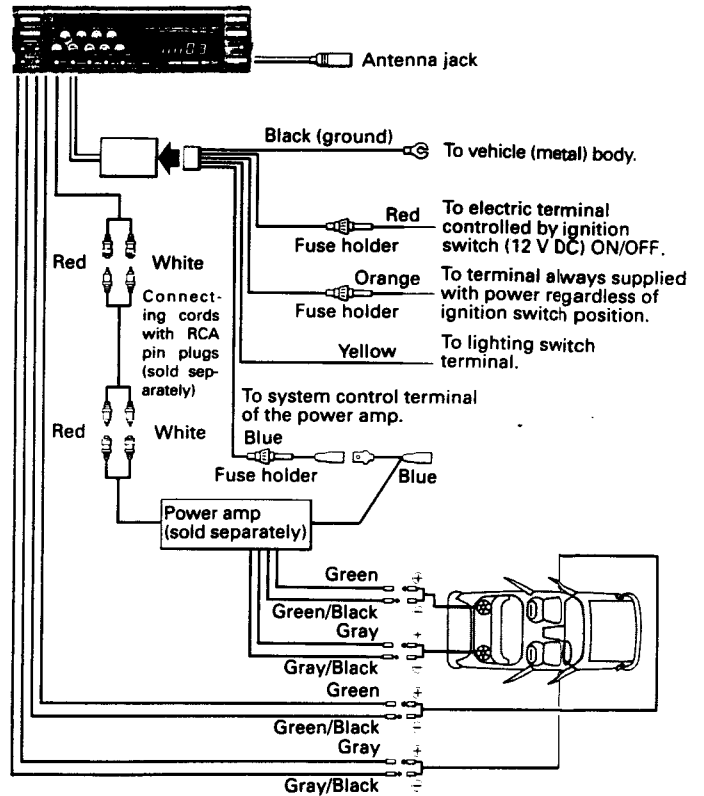
8. CONNECTION

• UC

2-speaker system

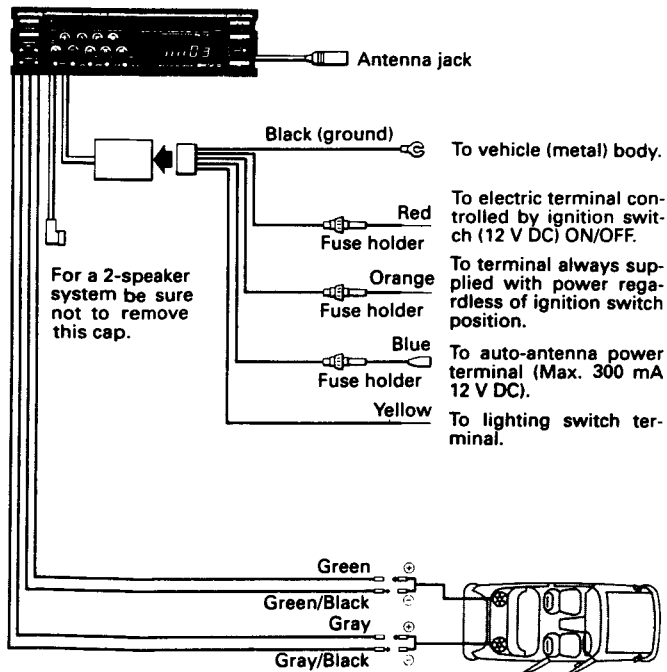


4-speaker system

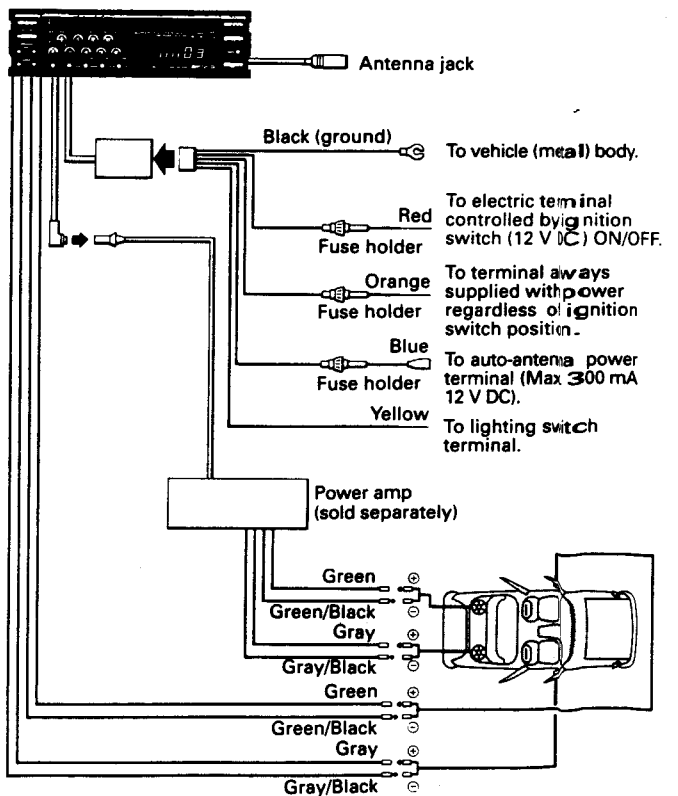


• WG, EW, EI

2-speaker system



4-speaker system



9. DISASSEMBLY

● Removing the Case

1. Remove seven screws, and then remove the case.

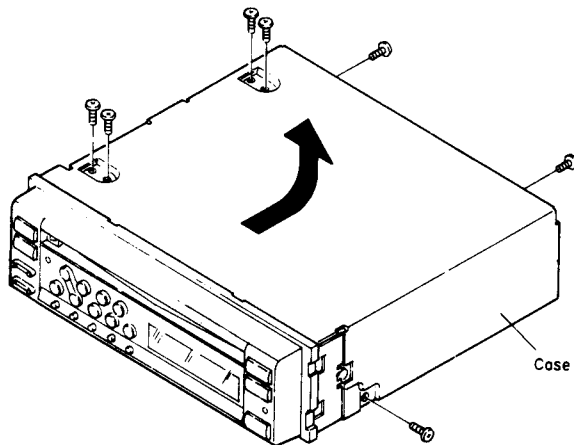


Fig. 1

● Removing the Grille Assy

1. Remove two screws A, and then remove the two side covers.
2. Remove two screws B.
3. Disengage the claws indicated by arrows.
4. Disconnect the three connectors, and then remove the grille assy. (Fig. 3)

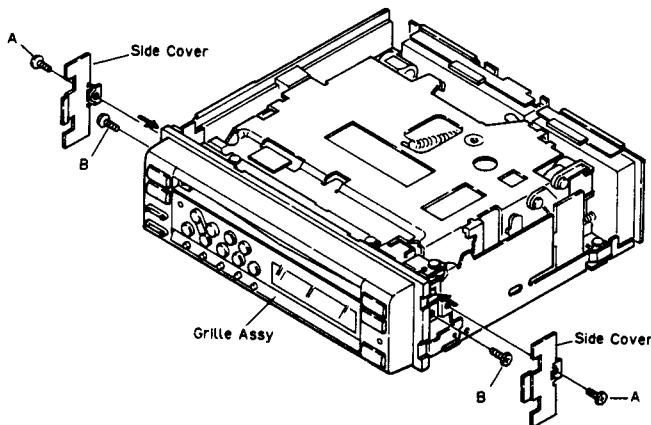


Fig. 2

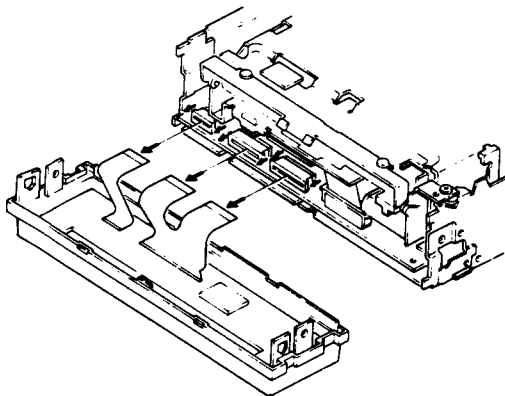


Fig. 3

● Removing the CD Mechanism Unit

1. Remove four screws.
2. Disconnect the two connectors, and then remove the CD mechanism unit.

NOTE; When removing the flexible p.c. board, always insert a shorting pin or insert an inter-pattern short (jumper) before disconnecting the board from the connector.

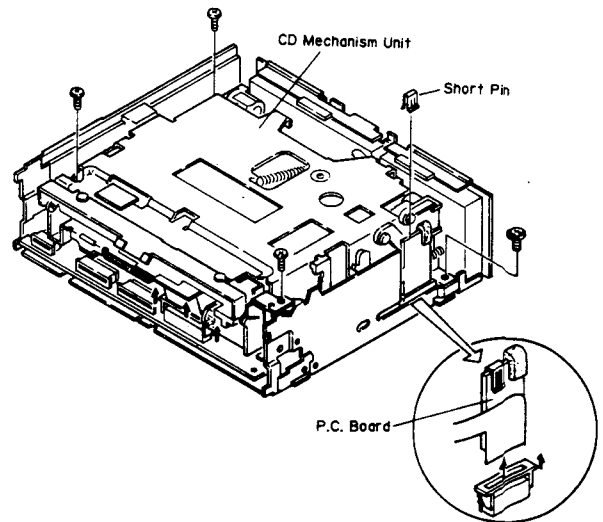


Fig. 4

● Removing the Amp Assy

1. Remove two screws, and then remove the amp assy.
2. Disconnect the two connectors. (Fig. 6)

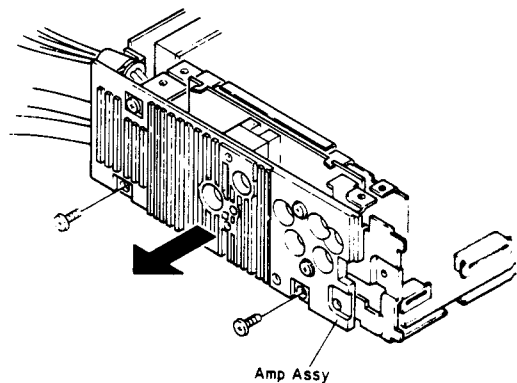


Fig. 5

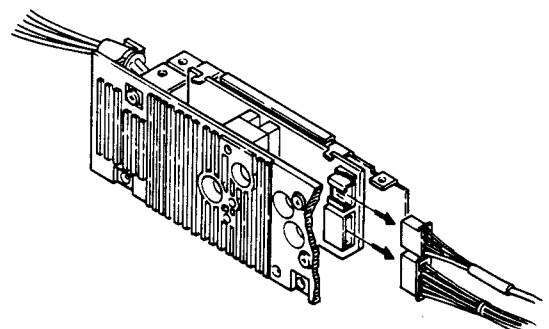


Fig. 6

● Removing the Chassis Unit

1. Remove a screw C.
2. Remove a screw D, and then remove the antenna holder.
3. Remove the cords from chassis unit.
4. Remove solder at location indicated by arrow.
5. Unbend seven tabs and then raise CD unit to remove from chassis unit.

Note: When the chassis unit is disassembled, the ground connection is removed. That is why when checking the tuner unit with the chassis unit disassembled, the CD unit ground and the tuner unit ground are shorted.

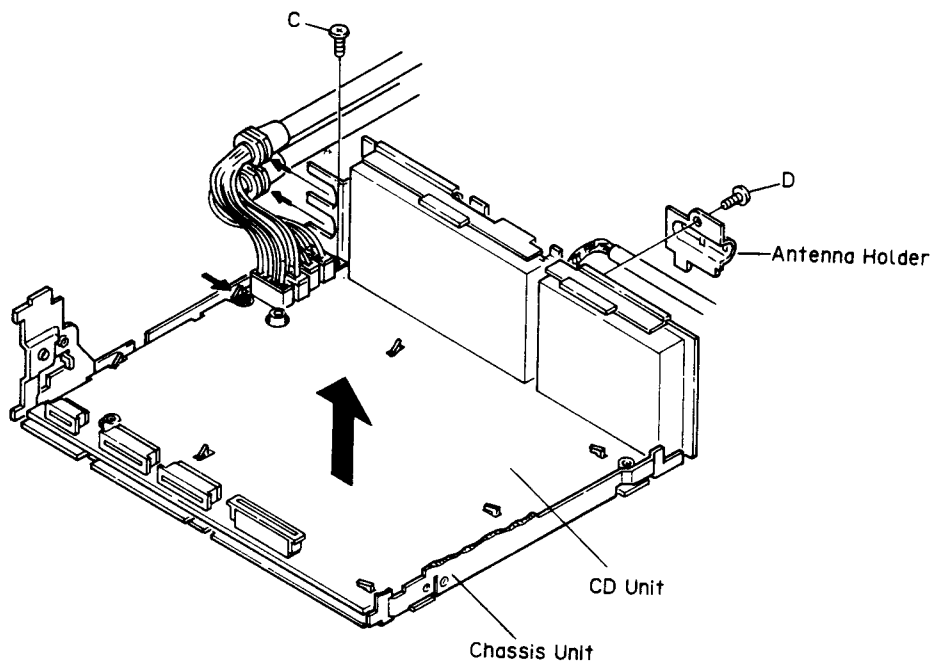


Fig. 7

● Removing the AM, FM, Tuner Unit

1. Remove solders and unbend tabs on back of each unit circuit board until straight.
2. Pull out unit as shown in illustration.

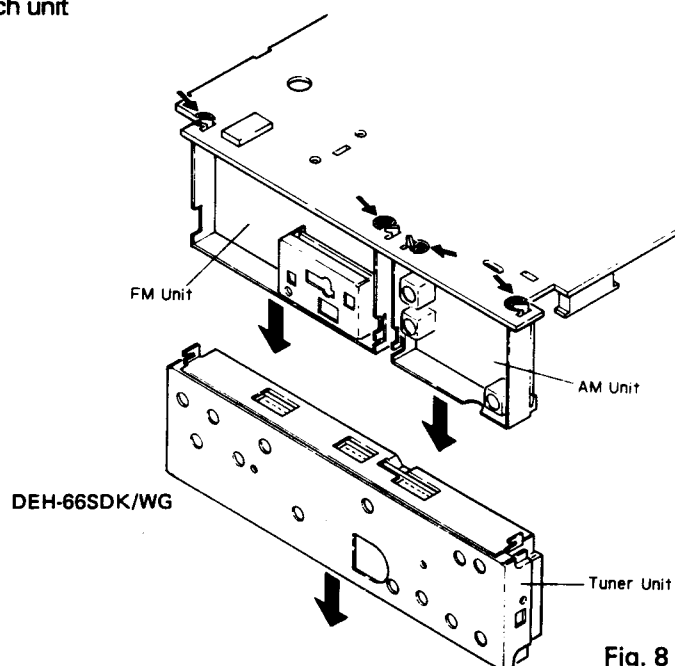


Fig. 8

10. ADJUSTMENT

1) Precautions

- DEH-66 uses a single power supply (+5V) of the regulator. The signal reference potential, therefore, is connected to pin no. 14 (approx. 2.5V) of IC351 (CXA1081M) instead of GND. (VC at test point)

If VC and GND are connected to each other by mistake during adjustments, not only will it be impossible to measure the potential correctly, but the servo will malfunction and a severe shock will be applied to the pick-up. To avoid this, take special note of the following.

Do not connect the negative probe of the measuring equipment to VC and GND together. It is especially important not to connect the channel 1 negative probe of the oscilloscope to VC with the channel 2 negative probe connected to GND.

And since the frame of the measuring instruments is usually at the same potential as the negative probe, change the frame of the measuring instrument to floating status.

If by accident VC comes in contact with GND, immediately switch the regulator or power OFF.

- Always make sure the regulator is OFF when connecting and disconnecting the various filters and wiring required for measurements.
- Before proceeding to further adjustments and measurements after switching regulator ON, let the player run for about one minute to allow the circuits to stabilize.

- Since the protective systems in the unit's software are rendered inoperative in test mode, be very careful to avoid mechanical and/or electrical shocks to the system when making adjustments.
- Test mode starting procedure
While pressing the LOC.S button and the TRACK (-) side button, press Clear button.
- Test mode cancellation
Press Clear button.
- Disc detection during loading and eject operations is performed by means of a photo transistor in this unit. Consequently, if the inside of the unit is exposed to a strong light source when the outer casing is removed for repairs or adjustment, the following malfunctions may occur.
 - During PLAY, even if the eject button is pressed, the disc will not be ejected and the unit will remain in the PLAY mode.
 - The unit will not load a disc.

When the unit malfunctions this way, either re-position the light source, move the unit or cover the photo transistor.

2) Adjustment Point

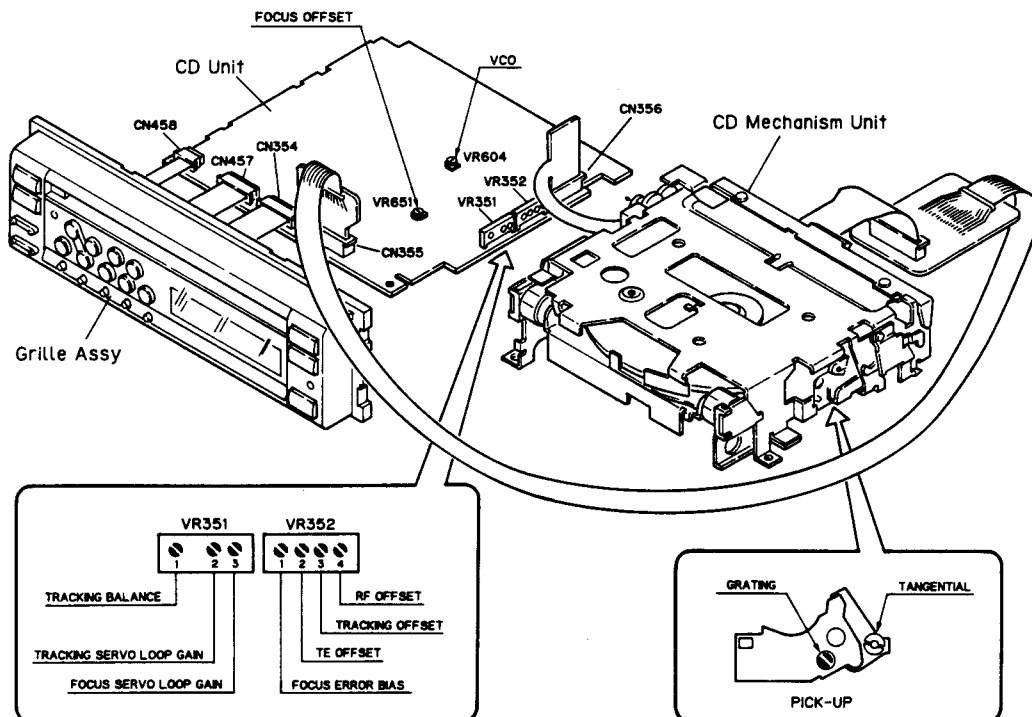
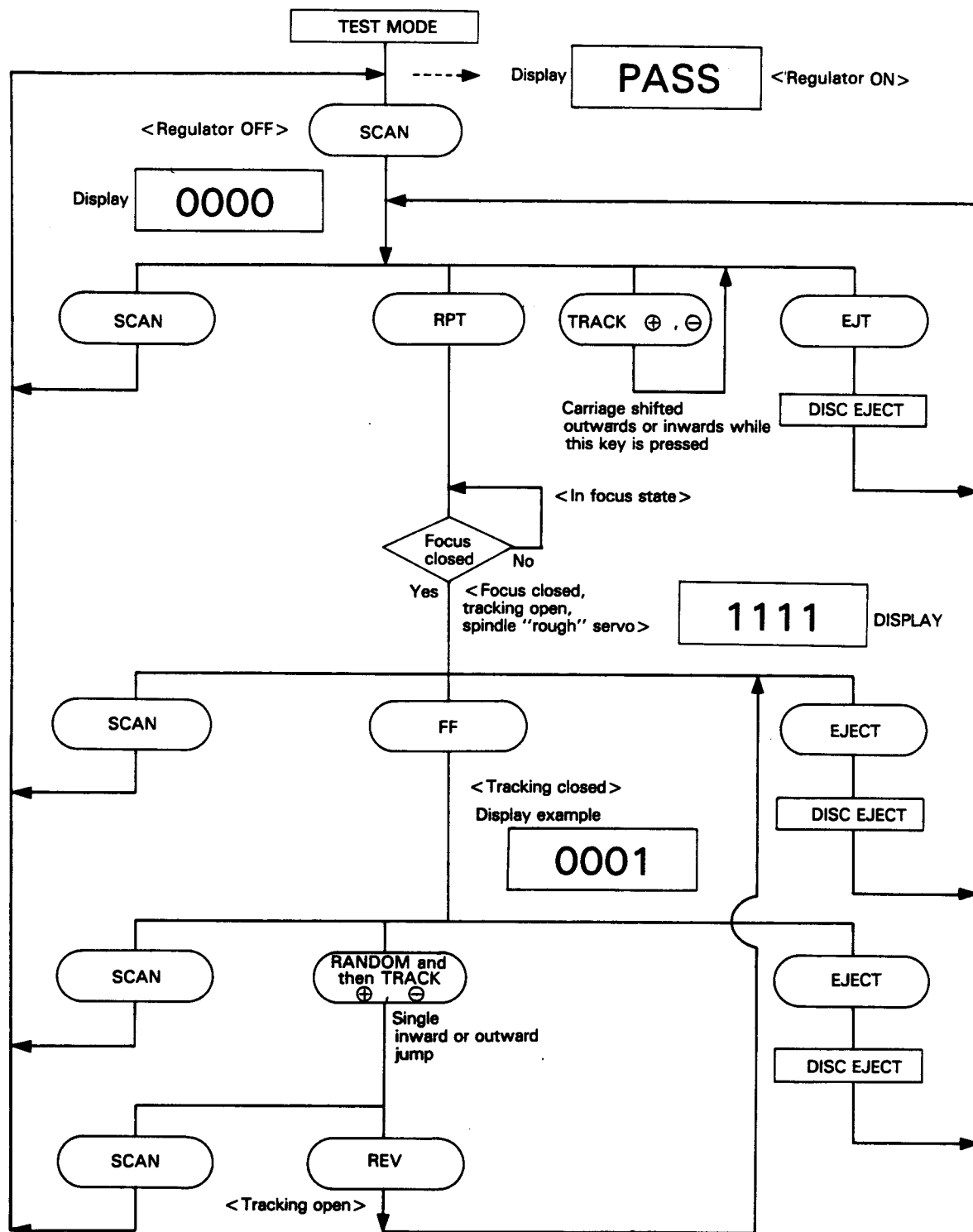


Fig. 9

● Flow Chart



10.1 Focus Offset Adjustment

● Purpose: To adjust the electrical offset of the focus amplifier to zero.

● Maladjustment symptoms: No focus closing

● Measuring equipment/
jigs

● Measuring point
● Test disc and setting
● Adjustment position

● Multi-meter or oscilloscope

● FEO2
● No disc, test mode
● VR651

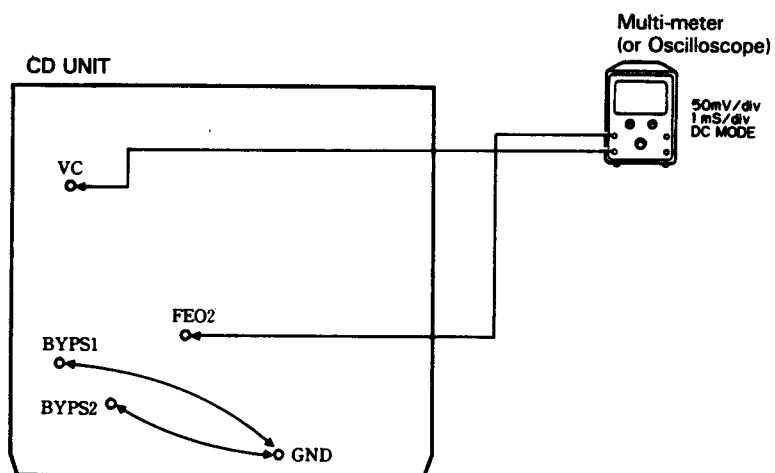


Fig. 11

Adjustment Procedure

1. Connect BYPS 1 and BYPS 2 to GND.
2. Switch regulator ON.
3. Using VR651, adjust the FEO2 DC voltage in reference to VC to a value of $0 \pm 25\text{mV}$.

-



Fig. 10

10.3 RF Offset Adjustment

● Purpose: To adjust the RF amplifier offset to a suitable value

● Maladjustment symptoms: Focus closure fails readily

● Measuring equipment/
jigs

● Measuring point

● Test disc and setting

● Adjustment position

● Oscilloscope

● RFO

● No disc

● Test mode

● VR352-4 (RFO)

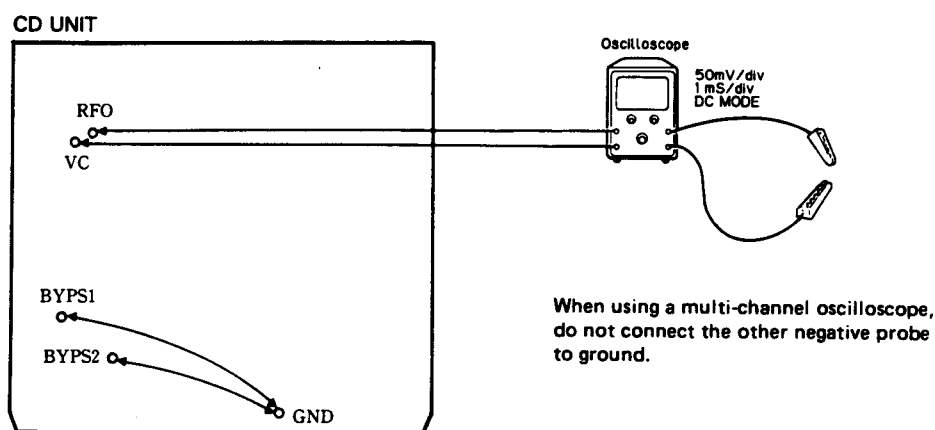


Fig. 13

Adjustment Procedure

1. Connect BYPS 1 and BYPS 2 to GND.
2. Switch regulator ON.
3. Using the oscilloscope, measure the RFO DC voltage in reference to VC, and adjust VR352-4 (RFO) to obtain a reading of $+250 \pm 25\text{mV}$.

10.2 VCO Free Run Frequency Adjustment

- **Purpose:** To adjust the EFM decoder reference clock free- run frequency to a suitable value
- **Maladjustment symptoms:** Spindle lock not possible, distorted sound or no sound at all

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> ● Measuring equipment/ jigs ● Measuring point ● Test disc and setting ● Adjustment position | <ul style="list-style-type: none"> ● Frequency counter, extension cables ● Pin no.70 (PLCK) of IC701 (CXD1135Q) ● No disc ● Test mode ● VR604 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

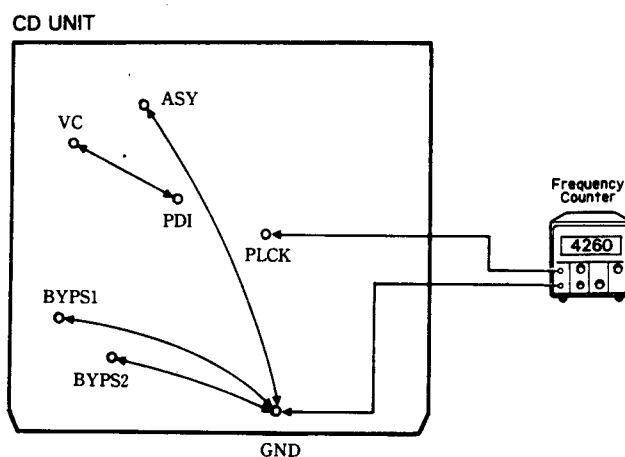


Fig. 12

Adjustment Procedure

1. Connect pin no.26 (TP ASY) of IC351 to GND.
Connect BYPS 1 and BYPS 2 to GND.
2. Connect pin no.1 (TP VC) of IC601 to pin no.28 (TP PDI).
3. Switch regulator ON while in test mode.
4. Connect the frequency counter to pin no.70 (TP PLCK) of IC701 (CXD1135Q).
5. Adjust VR604 to obtain a frequency of $4,26 \pm 0.005\text{MHz}$.
6. Switch regulator OFF.
7. Disconnect the leads connecting TP VC to TP PDI, and TP ASY to GND.

Note: Connect TP VC and TP PDI with leads kept as short as possible.

Note: Connect the frequency counter ground to TP GND as shown in the figure.

10.5 TE Offset Adjustment - I

- **Purpose:** To adjust the electrical offset of the tracking servo to zero.
- **Maladjustment symptoms:** Search times too long, carriage run-away

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> ● Measuring equipment/ jigs ● Measuring point ● Test disc and setting ● Adjustment position | <ul style="list-style-type: none"> ● DC voltmeter ● TAO low-pass filter output ● No disc ● Test mode ● VR352-2 (TEO) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|

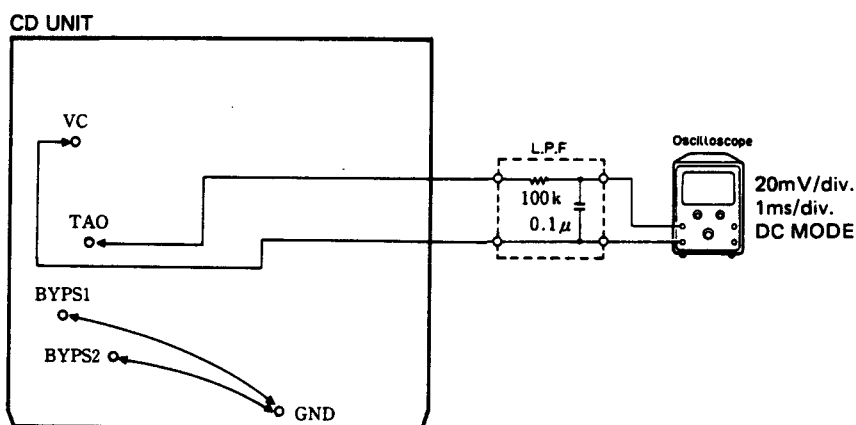


Fig. 15

Adjustment Procedure

1. Check that BYPS 1 and BYPS 2 are connected to GND.
2. Switch regulator ON while in test mode.
3. Press the **[FF]** key to close tracking.
4. Using VR352-2 (TEO), adjust the TAO LPF output DC voltage in reference to VC to a value of $0 \pm 10\text{mV}$.
5. Switch regulator OFF.

10.4 Tracking Offset Adjustment

- Purpose: To adjust the electrical offset of the tracking amplifier to zero
- Maladjustment symptoms: Search times too long, carriage run-away

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> ● Measuring equipment/jigs ● Measuring point ● Test disc and setting ● Adjustment position | <ul style="list-style-type: none"> ● Oscilloscope ● TAO low-pass filter output ● No disc • Test mode ● VR352-3 (TO) |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|

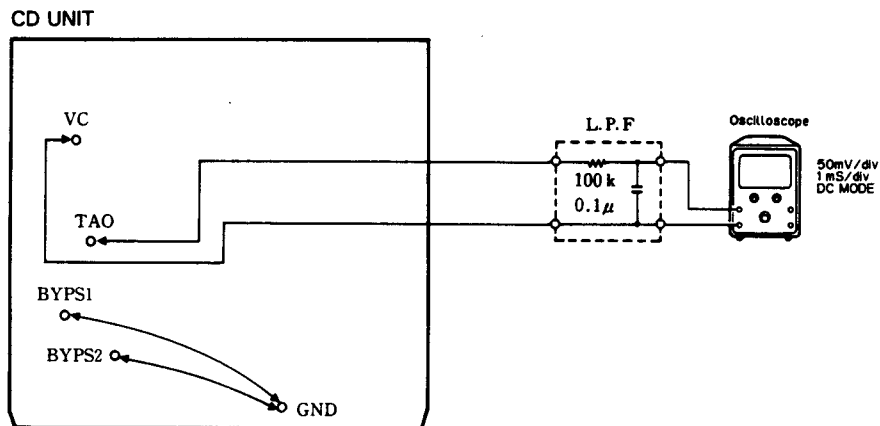


Fig. 14

Adjustment Procedure

1. Insert a low-pass filter between TAO and VC.
2. Check that BYPS 1 and BYPS 2 are connected to GND.
3. Switch regulator ON.
4. Using the oscilloscope, measure the TAO LPF output DC voltage in reference to VC, and adjust VR352-3 (TO) to obtain a reading of $0 \pm 25\text{mV}$.
The low-pass filter may be left in place for later adjustments.

10.6 Tracking Balance Adjustment - I

- Purpose: To adjust the tracking servo offset to zero.
- Maladjustment symptoms: Search times too long, poor playability, carriage run-away

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> ● Measuring equipment/jigs ● Measuring point ● Test disc and setting ● Adjustment position | <ul style="list-style-type: none"> ● Oscilloscope ● TEY (Tracking error signal), low-pass filter output ● SONY TYPE 4 (or TYPE 3) • Test mode ● VR351-1 (T. BAL) |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

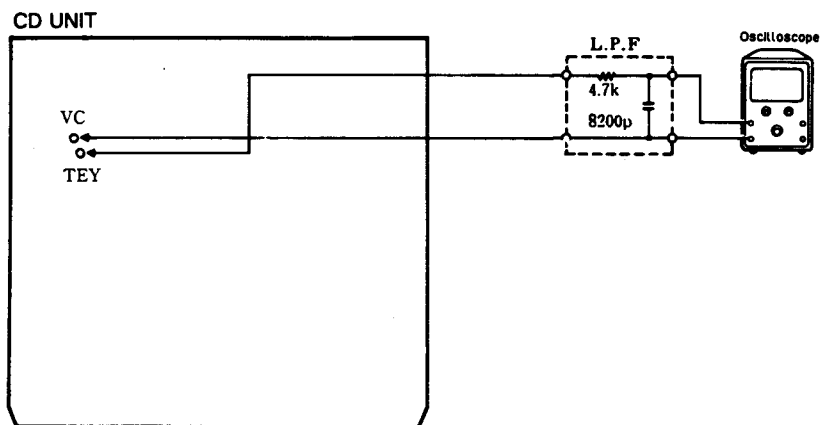
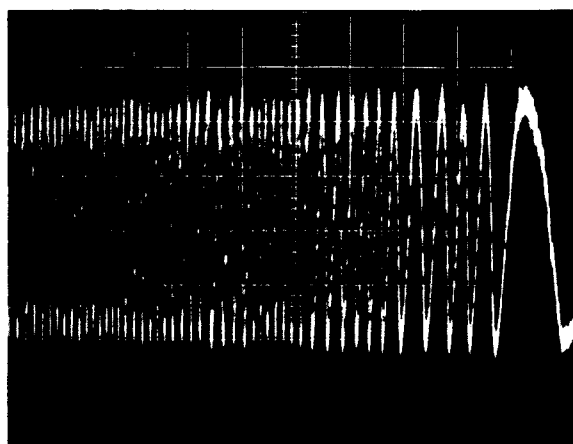


Fig. 16

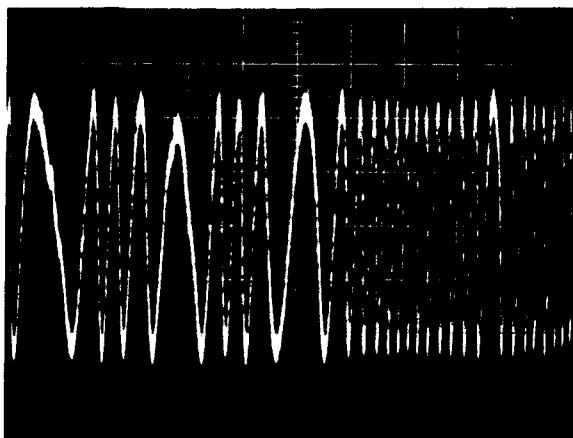
Adjustment Procedure

1. After checking that regulator is OFF, connect the low-pass filter as shown in the diagram.
2. Disconnect BYPS 1 and BYPS 2 from ground.
3. Set the test disc (SONY TYPE 4) in magazine tray 6 and load the magazine. Switch regulator ON.
4. Using the TRACK \oplus or \ominus key, move the pick-up to about the center of the signal surface.
5. Press the **RPT** key to close focus.
6. Using an oscilloscope, observe the TEY signal in respect to VC. Then adjust VR351-1 (T. BAL) to set the positive and negative amplitudes to the same levels. (See Fig. 17-19.)
7. Switch the power OFF.
The low-pass filter may be left in place for later adjustments.



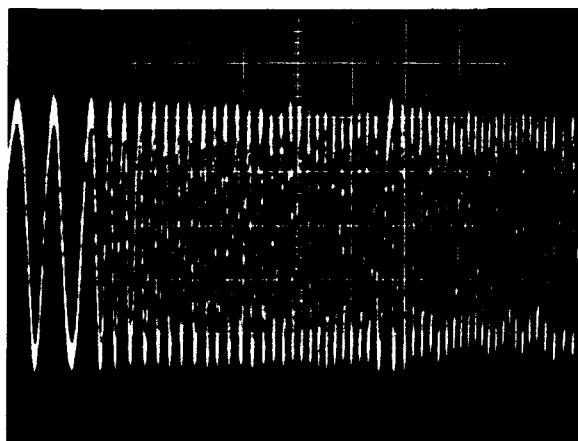
+ 5% NG

Fig. 17



$\pm 0\%$ OK

Fig. 18



- 5% NG

Fig. 19

10ms/div.
0.2V/div.
DC Mode

10.7 Tangential Skew Check

● **Purpose:** To check whether tangential skew has been misaligned or not when replacing the pick-up unit.

● **Maladjustment symptoms:** No disc playback; track jumping

● **Measuring equipment/**
jigs

● **Measuring point**

● **Test disc and setting**

● **Adjustment position**

• Oscilloscope, extension connectors, screwdriver

• RFO

• SONY TYPE 4 (or TYPE 3) • Normal mode

• Pick-up tangential adjustment screw

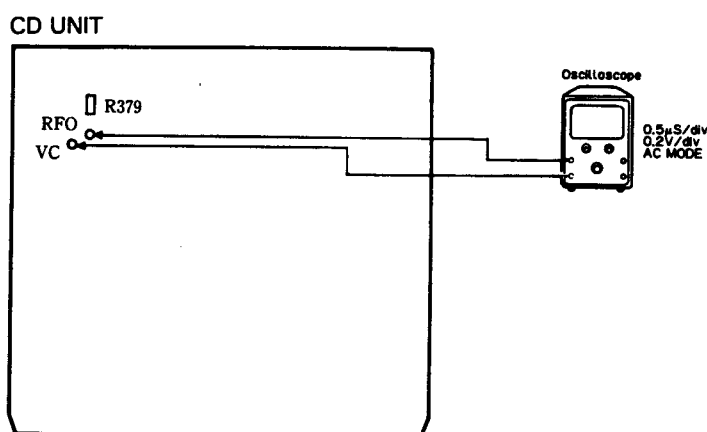
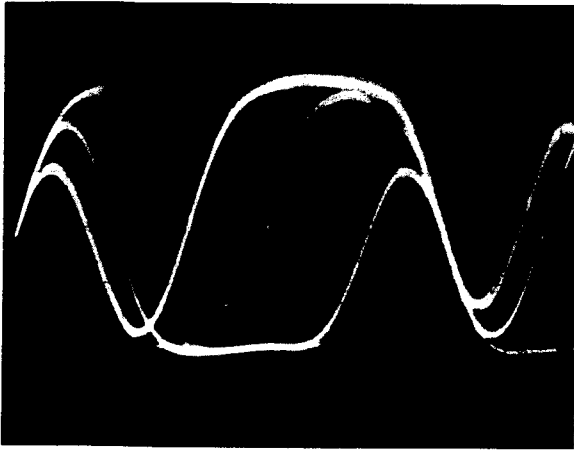


Fig. 20

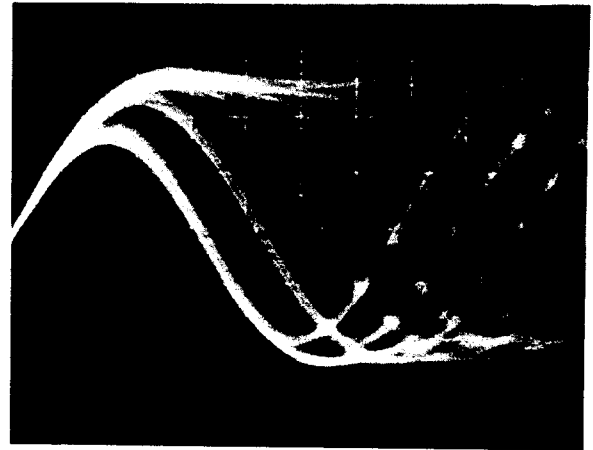
Adjustment Procedure (with R379 removed)

1. Remove R379 (but reconnect after completing adjustment).
2. Play tune TNO 7 in normal mode. (TYPE 3: TNO 23)
3. Check that the valley at the 11T section of the RF waveform is flat.
4. If out of adjustment, readjust to obtain a flat RF waveform. (See Fig. 21-26) Take care not to knock the pick-up with the screwdriver at this stage. (This kind of accident can result in loss of focus.)
5. Switch the power OFF and reconnect R379.
6. Apply "screw-lock" to the tangential adjustment screw.
7. After adjusting tangential skew, also adjust the grating.
8. If tangential skew is seriously out of adjustment, carriage stopping and run-away tend to occur in normal mode. In this case,
 - a) Switch to test mode,
 - b) Shift the pick-up to signal surface center using TRACK \oplus or \ominus key.
 - c) Press the **RPT** key to close focus.
 - d) Press the **FF** key to close the tracking.

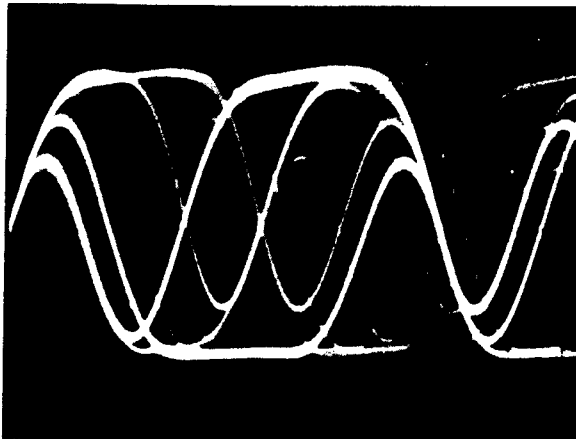
- e) Observe RFO in respect to VC, and turn the tangential adjustment screw to obtain a flat waveform at the 11T section.
- f) Repeat the adjustment resuming from step 2.



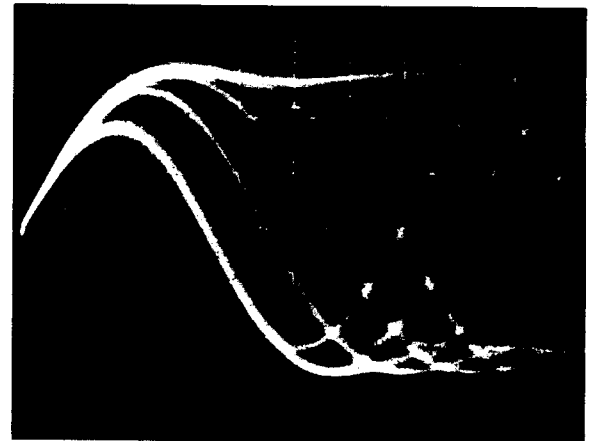
NG Fig. 21



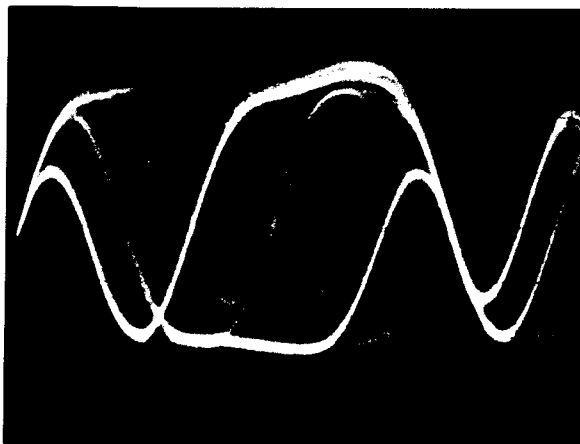
NG Fig. 22



OK Fig. 23

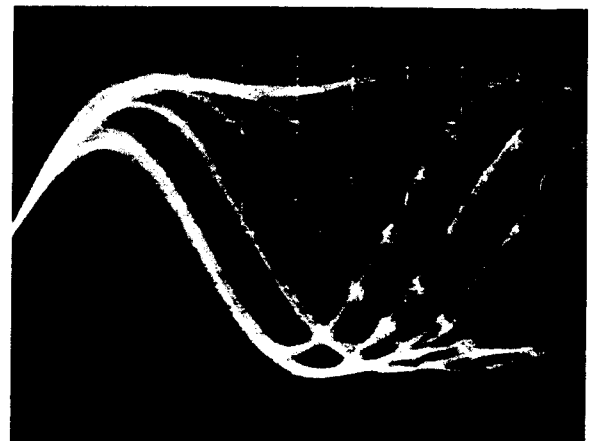


OK Fig. 24



NG Fig. 25

Play tune TNO 7 (TYPE4)



NG Fig. 26

Play tune TNO 12 (TYPE4)

10. 8 Grating Adjustment

● Purpose: The grating may need adjustment in a replaced pick-up assembly.

● Maladjustment symptoms: No disc playback; track jumping

● Measuring equipment/
jigs

● Measuring point

● Test disc and setting

● Adjustment position

● Oscilloscope, clock driver, grating adjustment filter (bandpass filter),
AC millivoltmeter, two low-pass filters

● TEY, E LPF output, F LPF output

● SONY TYPE 4 (or TYPE 3) • Test mode

● Pick-up grating adjustment hole

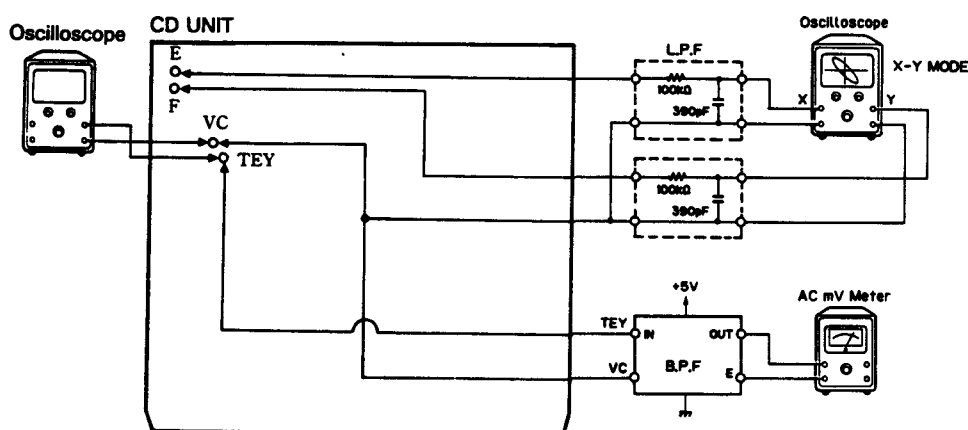


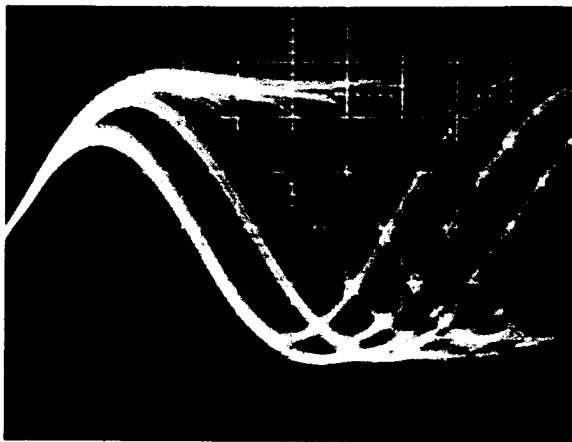
Fig. 30

Adjustment Procedure

1. Connect a low-pass filter (100k, 390p) to test points E, F, and VC as shown in the above diagram.
2. Switch regulator ON in test mode, and load a disc.
3. Press the **RPT** key to close focus.
4. Press the **FF** key to close tracking.
5. Press the **RANDOM** and using the TRACK \oplus or \ominus key, move the pick-up to about the center of the signal surface (tune TNO 6). (TYPE 3: TNO 7)
6. Press the **REV** key to open tracking.
7. While monitoring the TEY filter output by AC milli-voltmeter, turn the grating adjustment hole slowly. The AC voltage increases and decreases while turning the screw. Search for the minimum voltage level. (This corresponds to the position where the grating is on a track, and is referred to as the null point.)
8. Then while monitoring TEY by oscilloscope, turn the driver slowly clockwise from the null point (as seen from under the lens) until the first waveform peak amplitude is reached. (See Fig. 32-37)

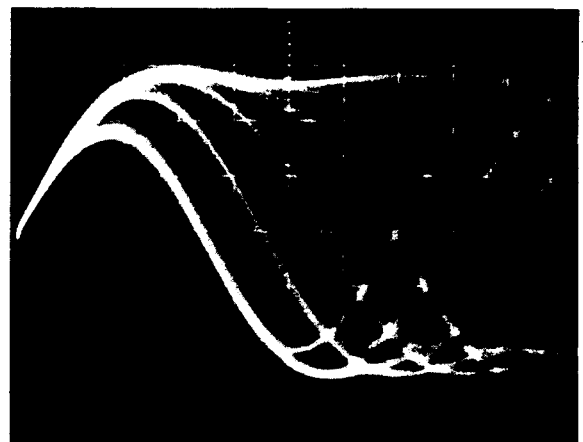
Adjustment Procedure (without R379 removed)

1. Play tune TNO 12 in normal mode. (TYPE 3: TNO 14)
2. Turn the tangential adjustment screw to obtain a good RF waveform eye pattern. Turn the adjustment screw both clockwise and counterclockwise to points where the eye pattern deteriorates, and take the midway point as the adjustment point. As a general guide, look for an overall clear waveform, and one of the diamond shapes in the eye pattern. The diamond shapes should appear in fine lines at the point of optimum adjustment. Take care not to knock the pick-up with the screwdriver at this stage. (This kind of accident can result in loss of focus.) (See Fig. 27-29)

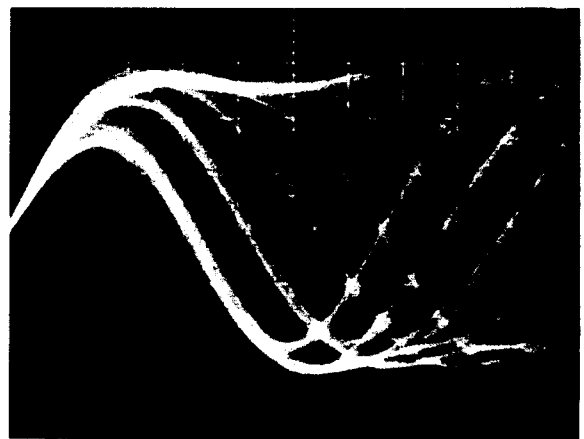


NG Fig. 27

3. Apply "screw-lock" to the tangential adjustment screw.
4. After adjusting tangential skew, also adjust the grating.



OK Fig. 28



NG Fig. 29

9. With the E low-pass filter output connected to the X axis of the oscilloscope, and the F low-pass filter output connected to the Y axis, apply an input in AC mode and observe the Lissajous figure.
10. Using the driver, adjust the Lissajous figure to a single line (or as close as possible).
11. Switch regulator OFF and remove the filters.

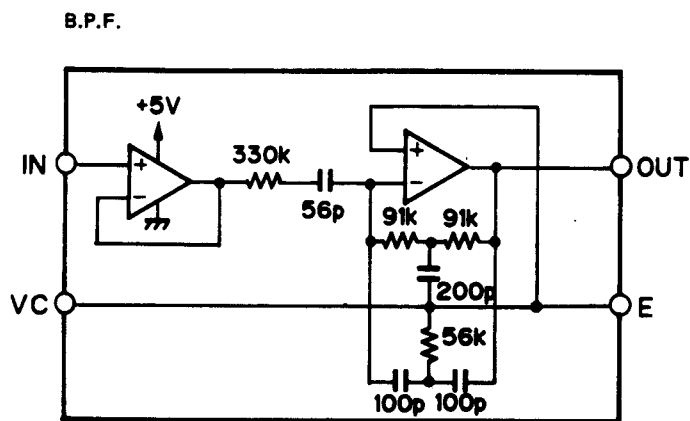


Fig. 31

TEY waveform 10ms/div, 500mV/div

Null Point

Lissajous figure (AC input)
Horizontal axis E 20mV/div
Vertical axis F 20mV/div



Fig. 32

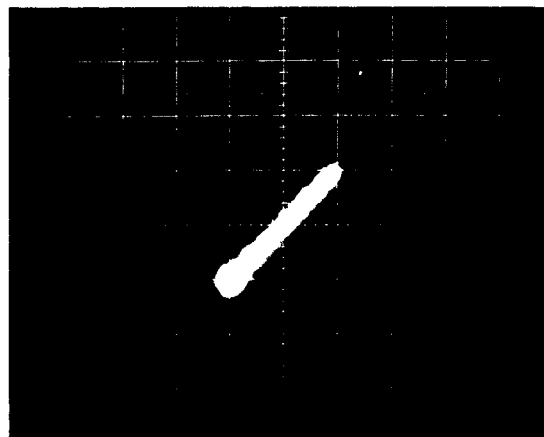


Fig. 33



"Rough" adjustment

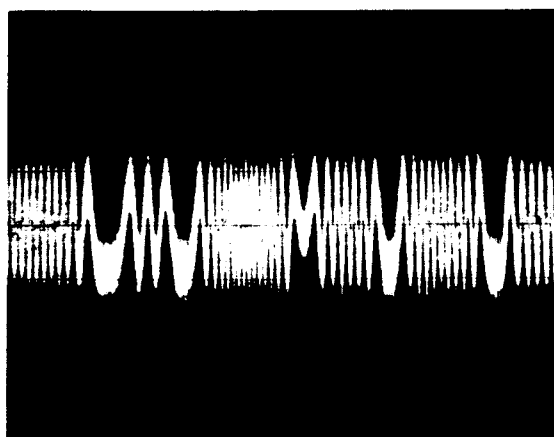


Fig. 34

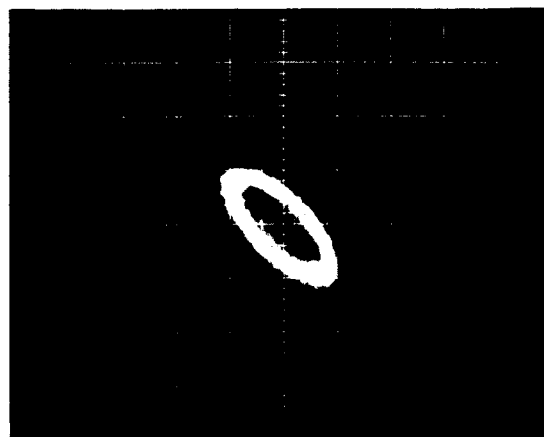


Fig. 35



Final adjustment

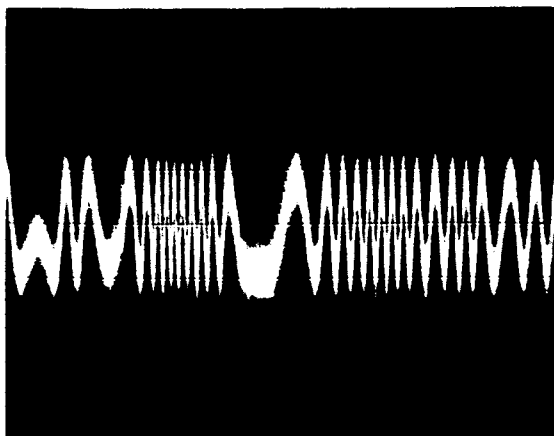


Fig. 36

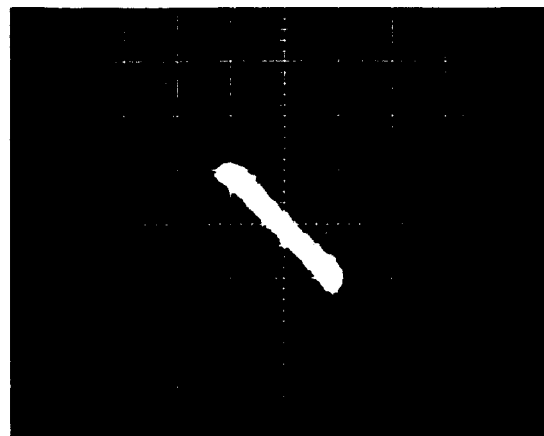


Fig. 37

10.9 Focus Bias Adjustment

- Purpose: To adjust the focus servo bias to an optimum value
- Maladjustment symptoms: Focus closing difficulty, poor playability

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none">● Measuring equipment/
jigs● Measuring point● Test disc and setting● Adjustment position | <ul style="list-style-type: none">● Oscilloscope● RFO● SONY TYPE 4 (or TYPE 3) • Normal mode● VR352-1 (FEB) |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|

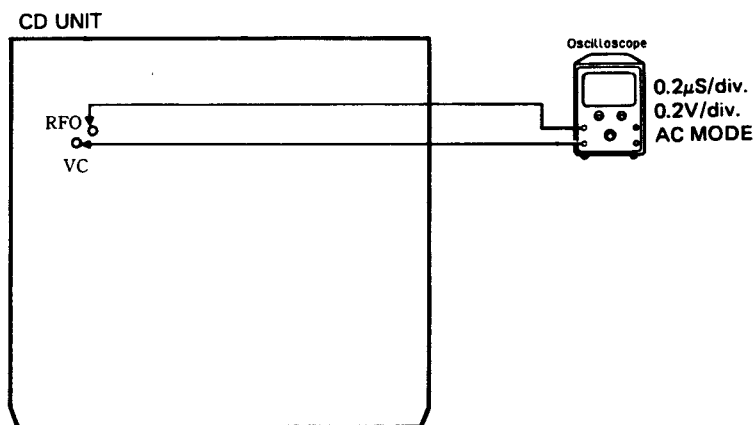
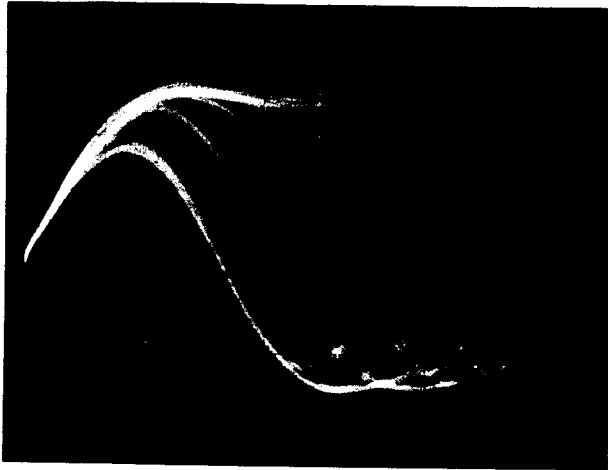


Fig. 38

Adjustment Procedure

1. Play tune TNO 12 in normal mode. (TYPE 3: TNO 14)
2. Observe RFO in respect to VC in the oscilloscope, and adjust VR352-1 (FEB) to obtain maximum RF and optimum eye pattern. (See Fig. 39 and 40)



OK

Fig. 39



0.2 μ s/div.
0.2V/div.
AC Mode

Before adjustment

Fig. 40

10. 10 Focus Servo Loop Gain Adjustment

- **Purpose:** To adjust the focus servo loop gain to an optimum value
- **Maladjustment symptoms:** Poor playability, reduced resistance to vibration, focus closure fails readily

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> ● Measuring equipment/ jigs ● Measuring point ● Test disc and setting ● Adjustment position | <ul style="list-style-type: none"> • Oscillator, gain adjustment filter, dual meter milli-voltmeter ← Same as for CDX-2 • FEX, FEY • SONY TYPE 4 (or TYPE 3) • Normal mode • VR351-3 (FG) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

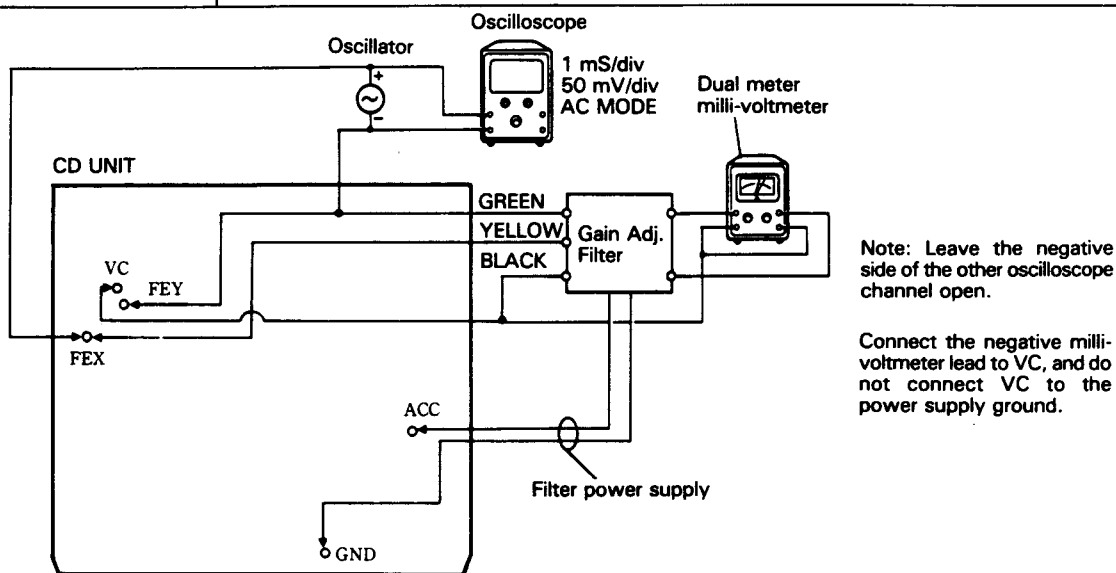


Fig. 41

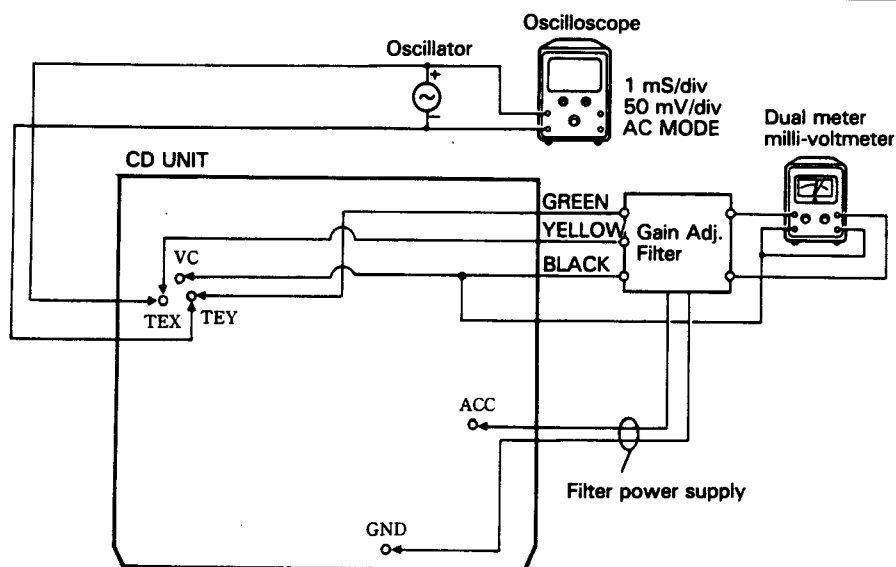
Adjustment Procedure

1. After checking that the power is OFF, connect the gain adjustment filter and measuring equipment as shown in the above diagram.
2. Play tune TNO 12 in normal mode. (TYPE 3: TNO 14)
3. Set the oscillator to 1kHz, and observe the FEX/FEY output in the oscilloscope. Adjust the oscillator output to obtain a FEX/FEY output of 200mVp-p.
4. Adjust VR351-3 (FG) to obtain a milli-voltmeter difference of $0 \pm 0.5\text{dB}$.

10.11 Tracking Servo Loop Gain Adjustment

- Purpose: To adjust the tracking servo loop gain to an optimum value
- Maladjustment symptoms: Poor playability, reduced resistance to vibration

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> ● Measuring equipment/jigs ● Measuring point ● Test disc and setting ● Adjustment position | <ul style="list-style-type: none"> ● Oscillator, gain adjustment filter, dual meter milli-voltmeter ● TEX, TEY ● SONY TYPE 4 (or TYPE 3) • Normal mode ● VR351-2 (TG) |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



Note: Leave the negative side of the other oscilloscope channel open.

Connect the negative milli-voltmeter lead to VC, and do not connect VC to the power supply ground.

Fig. 42

Adjustment Procedure

1. After checking that the power is OFF, connect the gain adjustment filter and measuring equipment as shown in the above diagram.
2. Play tune TNO 12 in normal mode. (TYPE 3: TNO 14)
3. Set the oscillator to 1.4kHz, and observe the TEX/TEY output in the oscilloscope. Adjust the oscillator output to obtain a TEX/TEY output of 200mVp-p.
4. Adjust VR351-2 (TG) to obtain a milli-voltmeter difference of $0 \pm 0.5\text{dB}$.

10.12 TE Offset Adjustment - II

- Purpose: To adjust the electrical offset of the tracking servo to zero.
- Maladjustment symptoms: Search times too long, carriage run-away

- Measuring equipment/
jigs
- Measuring point
- Test disc and setting
- Adjustment position

- DC voltmeter
- TAO low-pass filter output
- No disc • Test mode
- VR352-2

Adjustment Procedure

Same as for TE offset adjustment - I, but with the DC voltage of the TAO LPF output adjusted to $0 \pm 50\text{mV}$.

The purpose of this additional adjustment is to correct any deviations generated when carrying out the tracking balance and tracking servo loop gain adjustments after completing TE offset adjustment - I.

10.13 Tracking Balance Adjustment - II

- Purpose: To adjust the tracking servo offset to zero.
- Maladjustment symptoms: Search times too long, poor playability, carriage run-away

- | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none">● Measuring equipment/jigs● Measuring point● Test disc and setting● Adjustment position | <ul style="list-style-type: none">● Oscilloscope● TEY low-pass filter output● SONY TYPE 4 (or TYPE 3) • Test mode● VR351-1 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Adjustment Procedure

Steps 1 thru 5 same as tracking balance adjustment-I.

6. Check that the level difference between the positive and negative amplitudes of the TEY signal is within 5% (See Fig. 17-19). If greater than 5%, adjust with VR351-1.
7. If further adjustment was necessary in step 6, repeat TE offset adjustment - II.

AM ADJUSTMENT (UC) *(When 9kHz tuning steps)

	No.	AM SSG(400Hz,30%)		Displayed Frequency (kHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (kHz)	Level (dB)			
Tuning Volt	1			1,620 *(1,602)	T203	DC V Meter:Less than 6V
	2			530 *(531)	—	Verify that DC V Meter is more than 2V
IF	1	1,000 *(999)	20-25	1,000 *(999)	T204,205, 206	mV Meter:Maximum

MW/LW ADJUSTMENT (WG, EW, EI)

	No.	AM SSG(400Hz,30%)		Displayed Frequency (kHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (kHz)	Level (dB)			
Tuning Volt	1	(MW MODE)		1,602	T203	DC V Meter:Less than 6V
	2	(LW MODE)		153	—	Verify that DC V Meter is more than 2V
IF	1	999	20-25	999	T204,205, 206	mV Meter:Maximum

FM ADJUSTMENT (WG, EW, EI) * Stereo MOD.: 1kHz,L+R=90% , Pilot=10%

	No.	FM SSG(400Hz,100%)		Displayed Frequency (MHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (MHz)	Level (dB)			
IF	1	98.1	60	98.1	T51	Center Meter:0 (MONO Switch:MONO)
Front End	1			108.0	L5	DC V Meter:6.5±0.2V
	2			87.5	—	Verify that DC V Meter is more than 1.6V
	3	98.1	5-10	98.1	T1	mV Meter:Maximum
MPX	1	98.1 Pilot Only*	60	98.1	VR151	mV Meter:Minimum
	2	98.1*	60	98.1	VR101	mV Meter:Best separation (MONO Switch:AUTO)
ARC	1	98.1*	35	98.1	VR152	mV Meter:Separation 5dB (MONO Switch:AUTO)

10.14 Tuner Section

NOTICE:

Select C1 so that total capacity of 80pF attained from the direction of the receiver jack.

Z: Output impedance of SSG.

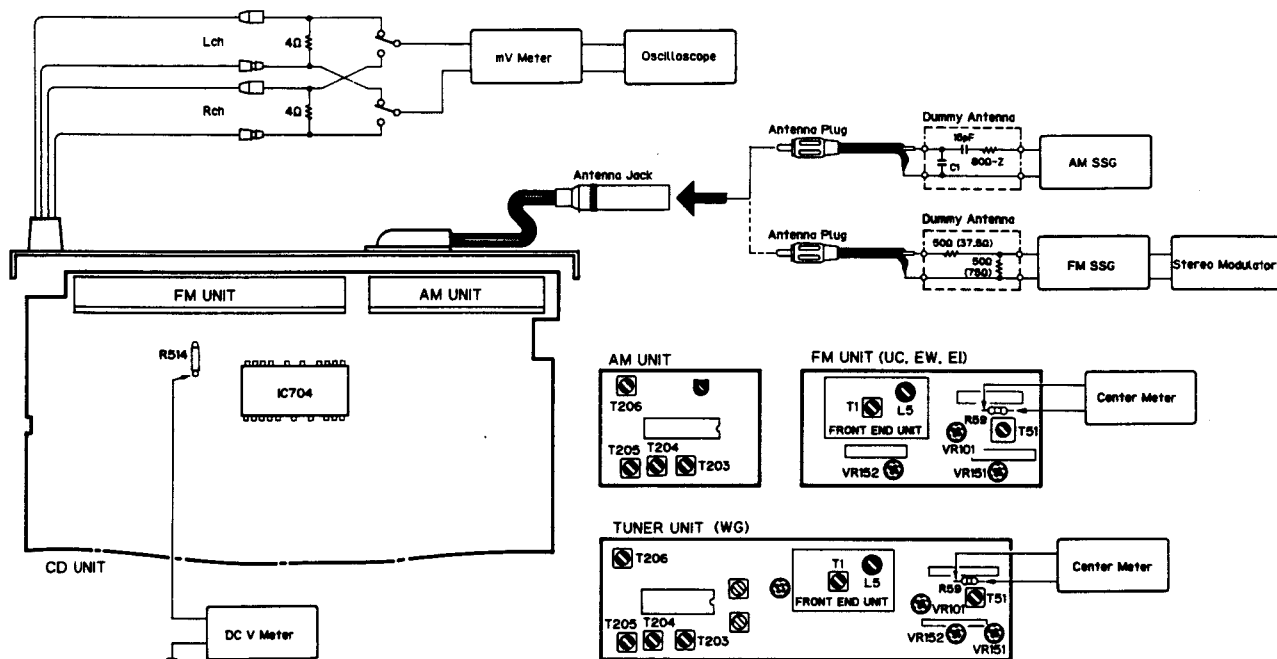


Fig. 43

FM ADJUSTMENT (UC) ※ Stereo MOD.: 1kHz, L+R=90% , Pilot=10%
*(When 50kHz tuning steps)

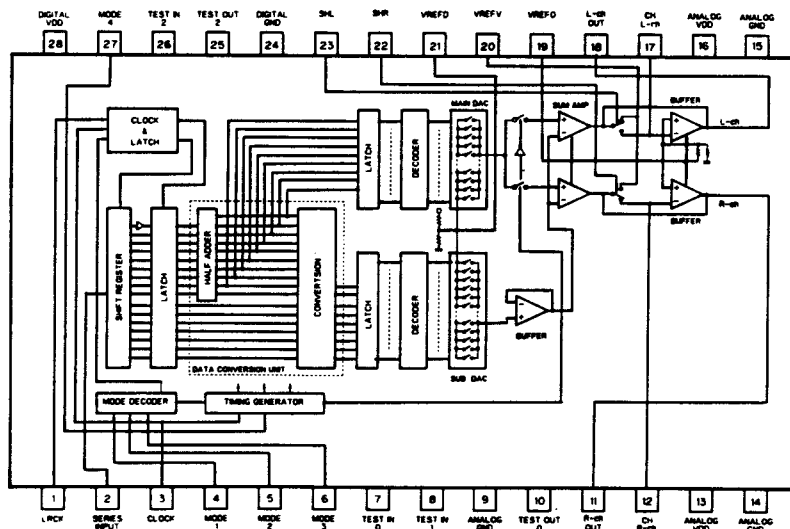
	No.	FM SSG (400Hz, 100%)		Displayed Frequency (MHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (MHz)	Level (dB)			
IF	1	98.1	60	98.1	T51	Center Meter: 0 (MONO Switch: MONO)
Front End	1			107.9 *(108.0)	L5	DC V Meter: $6.5 \pm 0.2V$
	2			87.9 *(87.5)	—	Verify that DC V Meter is more than 1.6V
	3	98.1	5-10	98.1	T1	mV Meter: Maximum
MPX	1	98.1 Pilot Only※	60	98.1	VR151	mV Meter: Minimum
	2	98.1※	60	98.1	VR101	mV Meter: Best separation (MONO Switch: AUTO)
ARC	1	98.1※	35	98.1	VR152	mV Meter: Separation 5dB (MONO Switch: AUTO)

Pin No.	Pin Name	I/O	Function and Operation
73	V _{DD}	—	Power supply (+ 5V)
74	DA12	Output	RAOV output
75	DA13	Output	C4LR output
76	DA14	Output	C21O output
77	DA15	Output	C21O output
78	DA16	Output	DATA output
79	WDCK	Output	Strobe signal output (176.4kHz)
80	LRCK	Output	Strobe signal output (88.2kHz)

Note:

C1F1: ☐ C1 decoding error correction status monitor output
 C1F2: ☐
 C2F1: ☐ C2 decoding error correction status monitor output
 C2F2: ☐
 C2FL: Corrected status output - "H" if C2 system currently being corrected cannot be corrected
 C2PO: C2 pointer indication output - synchronized with audio data output
 RFCK: Read frame clock output - crystal oscillator 7.35kHz
 WFCK: Write frame clock output - $f = 7.35\text{kHz}$ when crystal oscillator is locked
 PLCK: VCO/2 output - $f = 4.3218\text{MHz}$ when EFM signal is locked
 UGFS: Unprotected frame synchronizing pattern output
 GTOP: Frame synchronization protection status indicator output
 RAOV: ± 4 frame jitter absorption RAM overflow and underflow indicator output
 C4LR: Strobe signal - 176.4kHz
 C21O: C21O inverting output
 C21O: Bit clock output - 2.1168MHz
 DATA: Audio signal serial data output

*IC703: $\mu\text{PD6355G}$



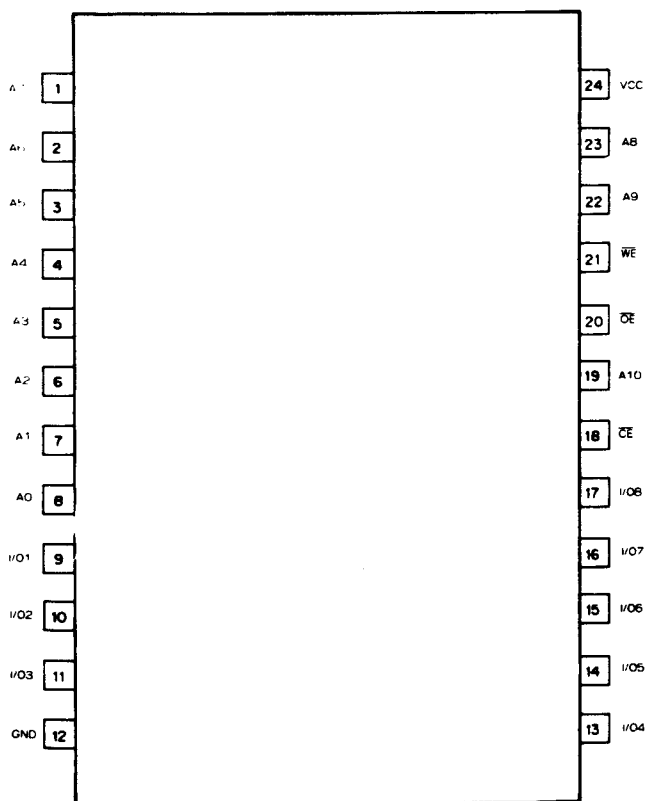
● Pin Functions ($\mu\text{PD6355G}$)

Pin No.	Pin Name	I/O	Function and Operation
1	LRCK	Input	Input data left/right discriminator signal input pin "L" = Left, "H" = Right
2	SI	Input	Serial data input pin
3	CLK	Input	Serial input data read clock input pin
4-6	M1-M3	Input	Input data mode selector pin

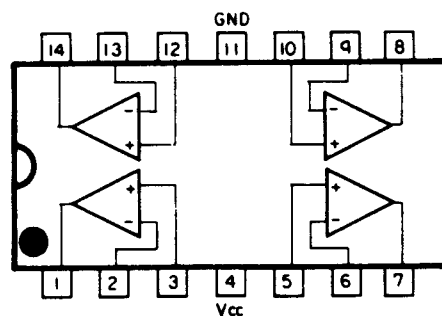
Pin No.	Pin Name	I/O	Function and Operation
36	DB02	Input/Output	External RAM data pin - DATA2
37	DB01	Input/Output	External RAM data pin - DATA1 (LSB)
38	RA01	Output	External RAM address output - ADDR01 (LSB)
39	RA02	Output	External RAM address output - ADDR02
40	RA03	Output	External RAM address output - ADDR03
41	RA04	Output	External RAM address output - ADDR04
42	RA05	Output	External RAM address output - ADDR05
43	RA06	Output	External RAM address output - ADDR06
44	RA07	Output	External RAM address output - ADDR07
45	RA08	Output	External RAM address output - ADDR08
46	RA09	Output	External RAM address output - ADDR09
47	RA10	Output	External RAM address output - ADDR010
48	RA11	Output	External RAM address output - ADDR011 (MSB)
49	RAWE	Output	External RAM write enable signal output (active "L")
50	RACS	Output	External RAM chip select signal output (active "L")
51	C4M	Output	X'tal frequency division output (f = 4.2336MHz)
52	V _{SS}	—	Ground (0V)
53	XTAI	Input	Crystal oscillator input (f = 8.4672MHz)
54	XTAO	Output	Crystal oscillator output (f = 8.4672MHz)
55	MD1	Input	Mode selector input 1
56	MD2	Input	Mode selector input 2
57	MD3	Input	Mode selector input 3
58	SLOB	Input	Audio data output code selector input - 2's complement output if "L", offset binary output if "H"
59	PSSL	Input	Audio data output mode selector input - serial output if "L", parallel output if "H"
60	APTR	Output	Aperture correction control output - "H" when right channel
61	APTL	Output	Aperture correction control output - "L" when left channel
62	DA01	Output	C1F1 output
63	DA02	Output	C1F2 output
64	DA03	Output	C2F1 output
65	DA04	Output	C2F2 output
66	DA05	Output	C2FL output
67	DA06	Output	C2PO output
68	DA07	Output	RFCK output
69	DA08	Output	WFCK output
70	DA09	Output	PLCK output
71	DA10	Output	UGFS output
72	DA11	Output	GTOP output

Pin No.	Pin Name	I/O	Function and Operation
7,8	TI ₀ , TI ₁	Input	Test pins
9	A·GND		Analog stage ground pin
10	TO0	Output	Test pin
11	ROUT	Output	Right channel analog signal output pin
12	CHR	Output	Right channel analog signal sample hold capacitor pin
13	A·VDD		Analog stage power supply pin
14,15	A·GND		Analog stage ground pins
16	A·VDD		Analog stage power supply pin
17	CHL	Output	Left channel analog signal sample hold capacitor pin
18	LOUT	Output	Left channel analog signal output pin
19	VREFO		Operation amplifier reference connection
20	VREFV		Connection to AGND via capacitor
21	VREFD		Connection to resistance ladder
22	SHR	Input	Right channel analog output sample hold timing signal Active high
23	SHL	Input	Left channel analog output sample hold timing signal Active high
24	D·GND		Logic stage ground pin
25	TO2	Output	Test pin
26	TI2	Input	Test pin
27	M4	Input	Internal logic clock selection which determines whether input from CLK pin is to be divided or not "H": No division, "L": Divide by 2
28	D·VDD		Logic stage power supply pin

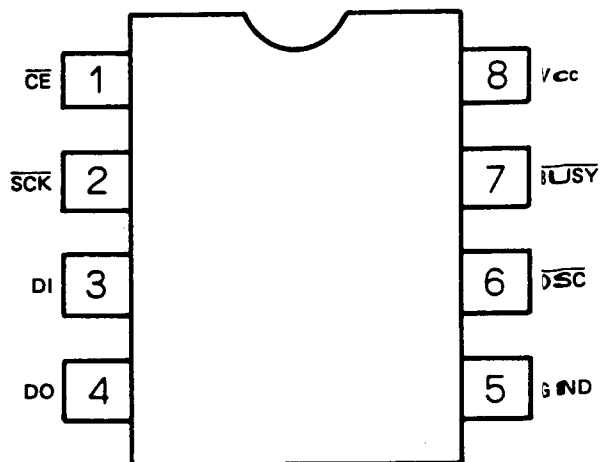
*IC702 : CXX5816M-15L



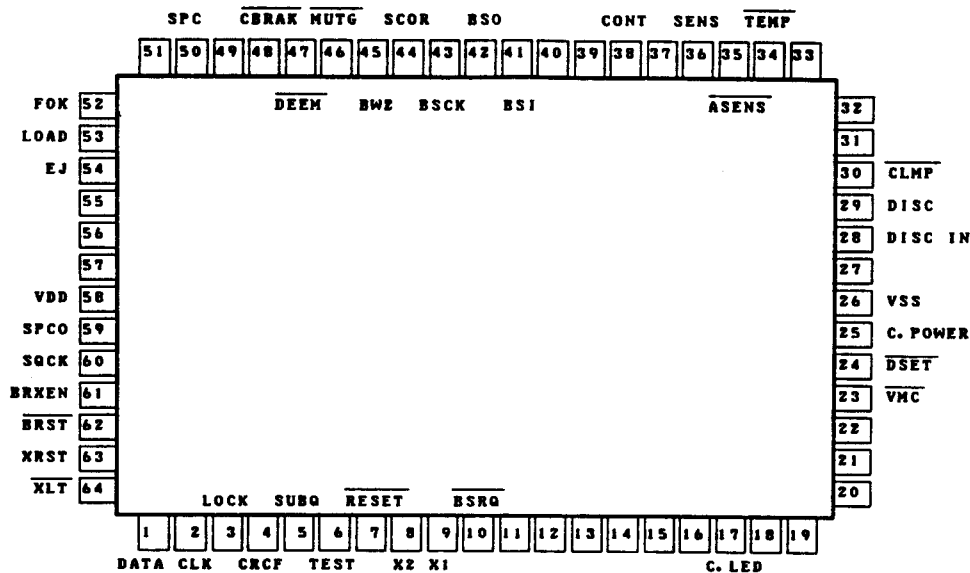
IC851: M5228FP



IC882 : PDG011



*IC751 : PD4136A



● Pin Functions (PD 4 1 3 6 A)

Pin No.	Pin Name	I/O	Function and Operation
1	DATA	CMOS IN	Serial data output
2	CLK	CMOS OUT	Serial data clock output
3	LOCK	CMOS IN	Spindle lock monitor "H"=Lock
4	CRCF	CMOS IN	CRC check result input "H"=CRC OK
5	SUBQ	CMOS IN	Sub-code data input
6	TEST	CMOS IN	Test input
7	RESET	CMOS IN	Reset input
8	X2	CMOS OUT	Oscillator output
9	X1	CMOS IN	Oscillator input
10	BSRQ	CMOS OUT	Service request line "L"=Request
17	C. LED	CMOS OUT	Output for LED
23	VMC	CMOS OUT	Loading power supply control
24	DSET	CMOS OUT	Disc set LED control
25	C. POWER	CMOS OUT	Regulator ON/OFF control "H"=Regulator ON
26	VSS	—	Ground
28	DISC IN	CMOS IN	Door switch input "H"=Door open

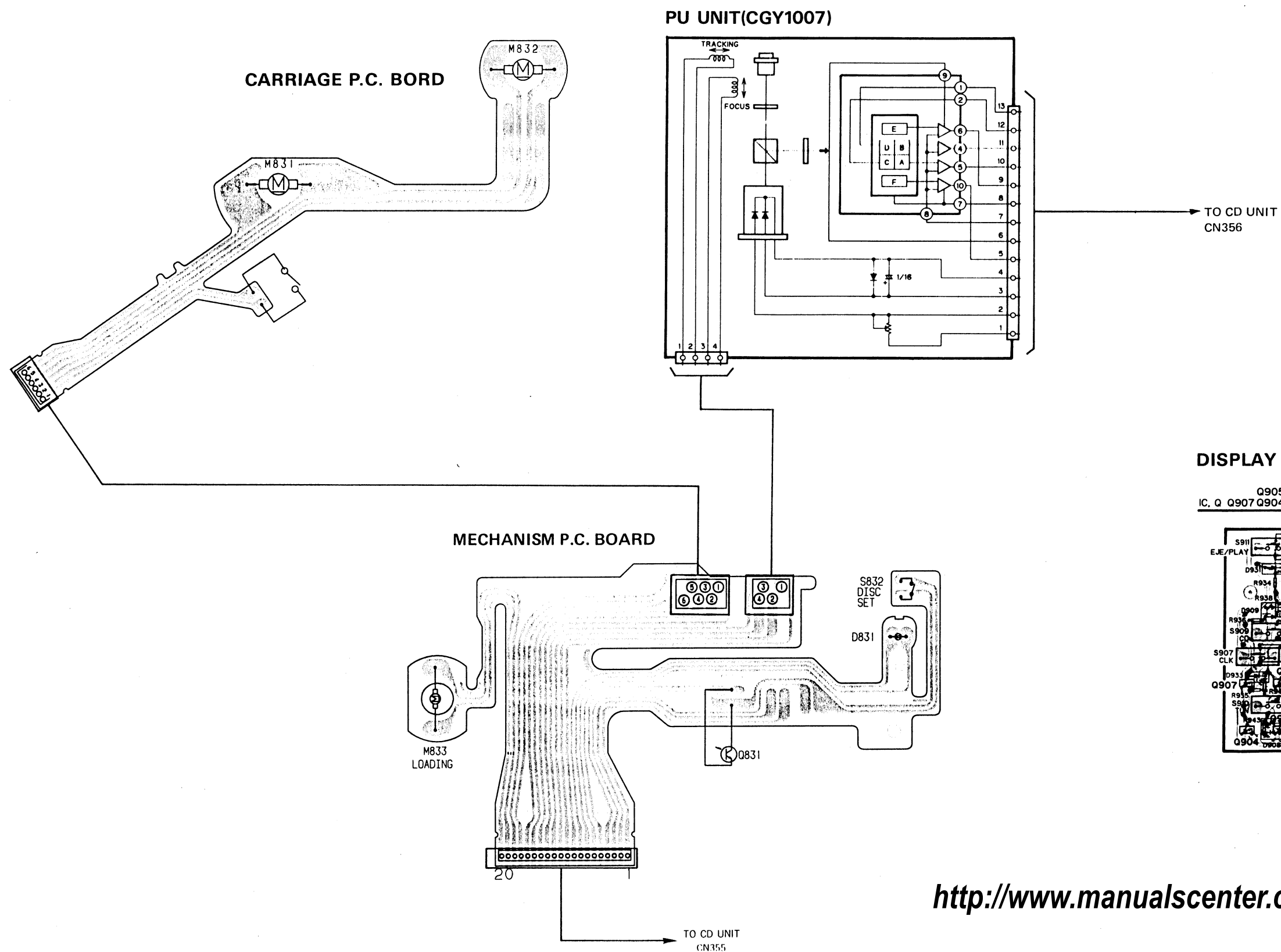
18. CONNECTION DIAGRAM (CD MECHANISM)

A

B

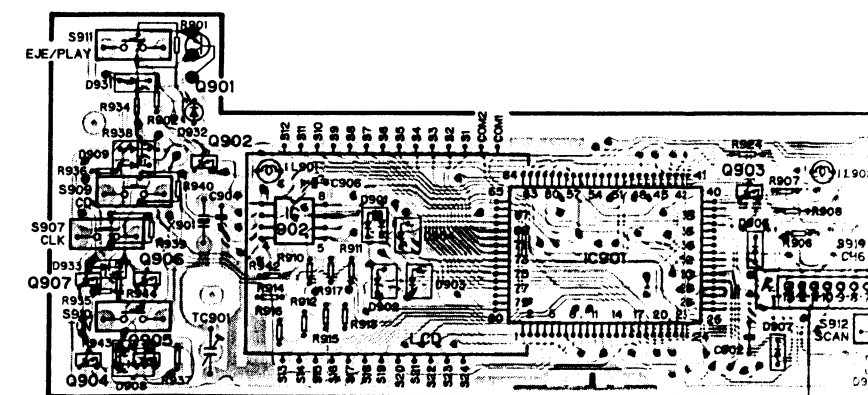
C

D



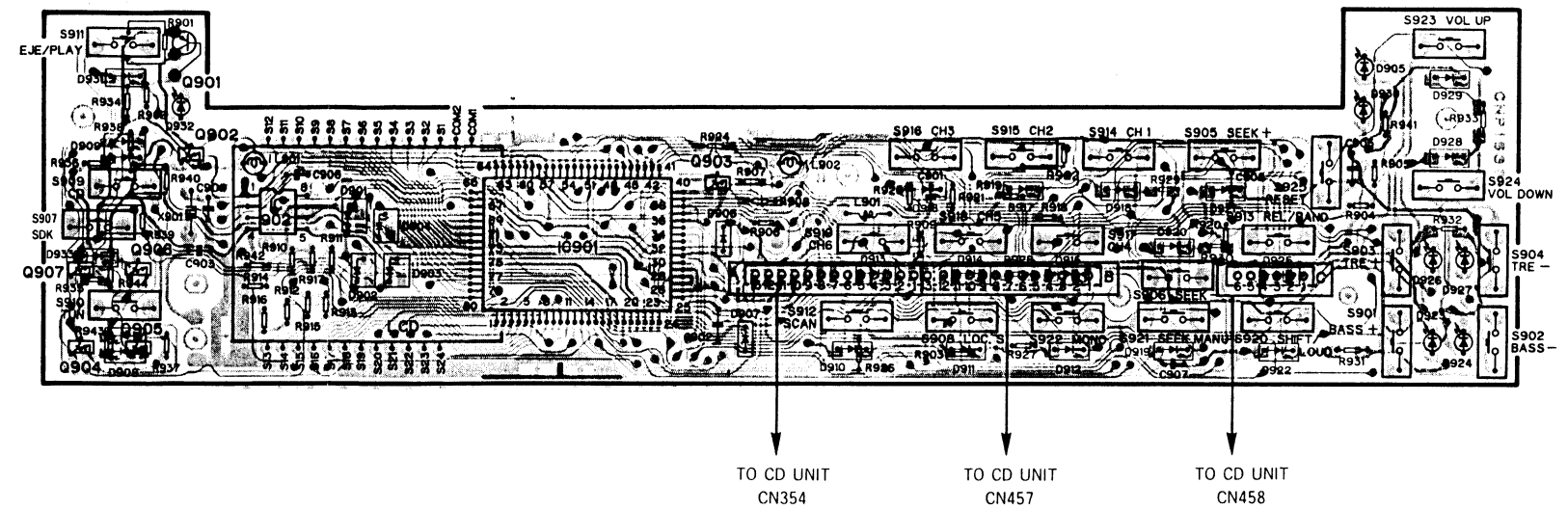
DISPLAY UNIT (DEH-66/UC)

Q905 Q906 Q901
IC, Q Q907 Q904 Q902 IC902 IC901 Q903



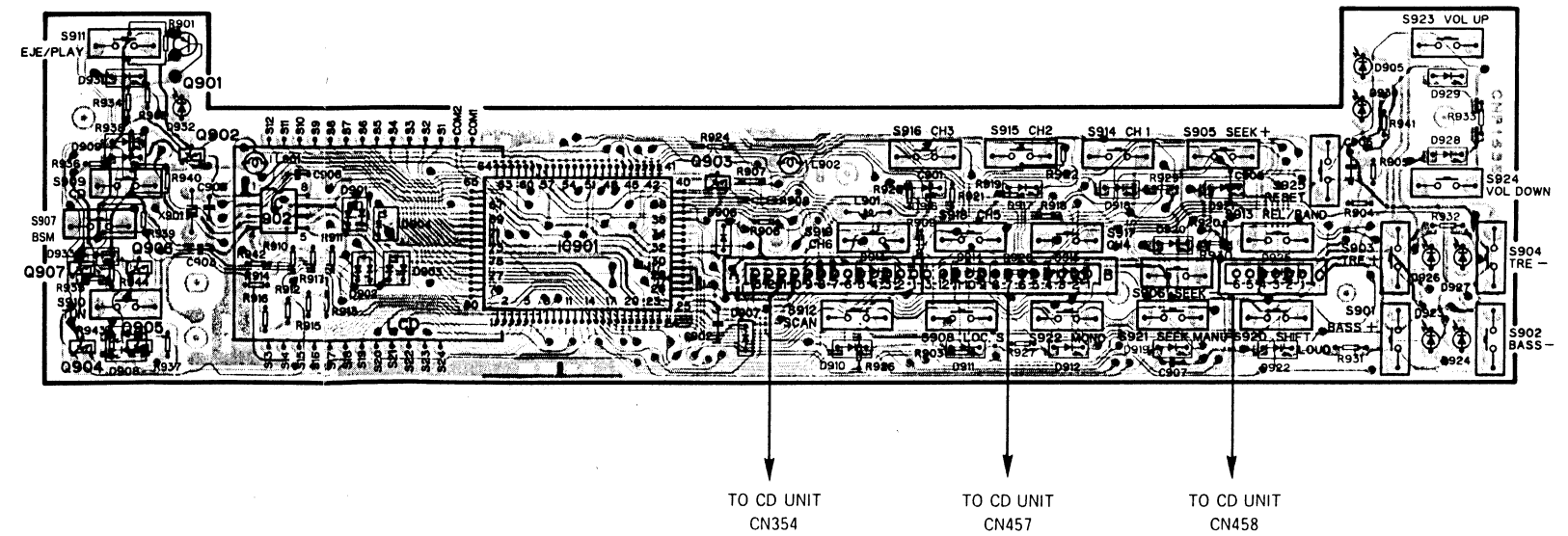
<http://www.manualscenter.com>

DISPLAY UNIT (DEH-66 SDK/WG)

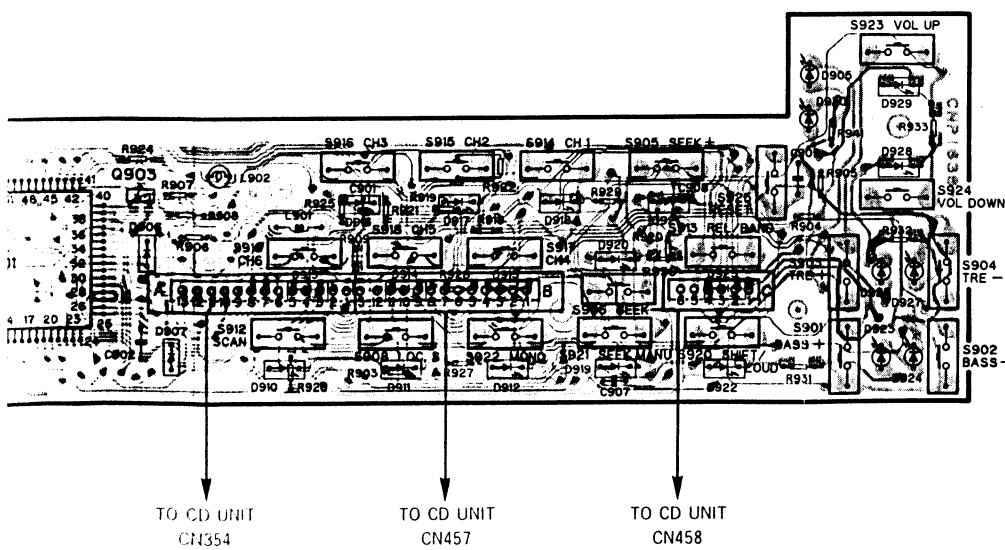
[illegible]

DISPLAY UNIT (DEH-66/EW,EI)

		Q905	Q906	Q901		
IC, Q	Q907	Q904	Q902	IC902	IC901	Q903



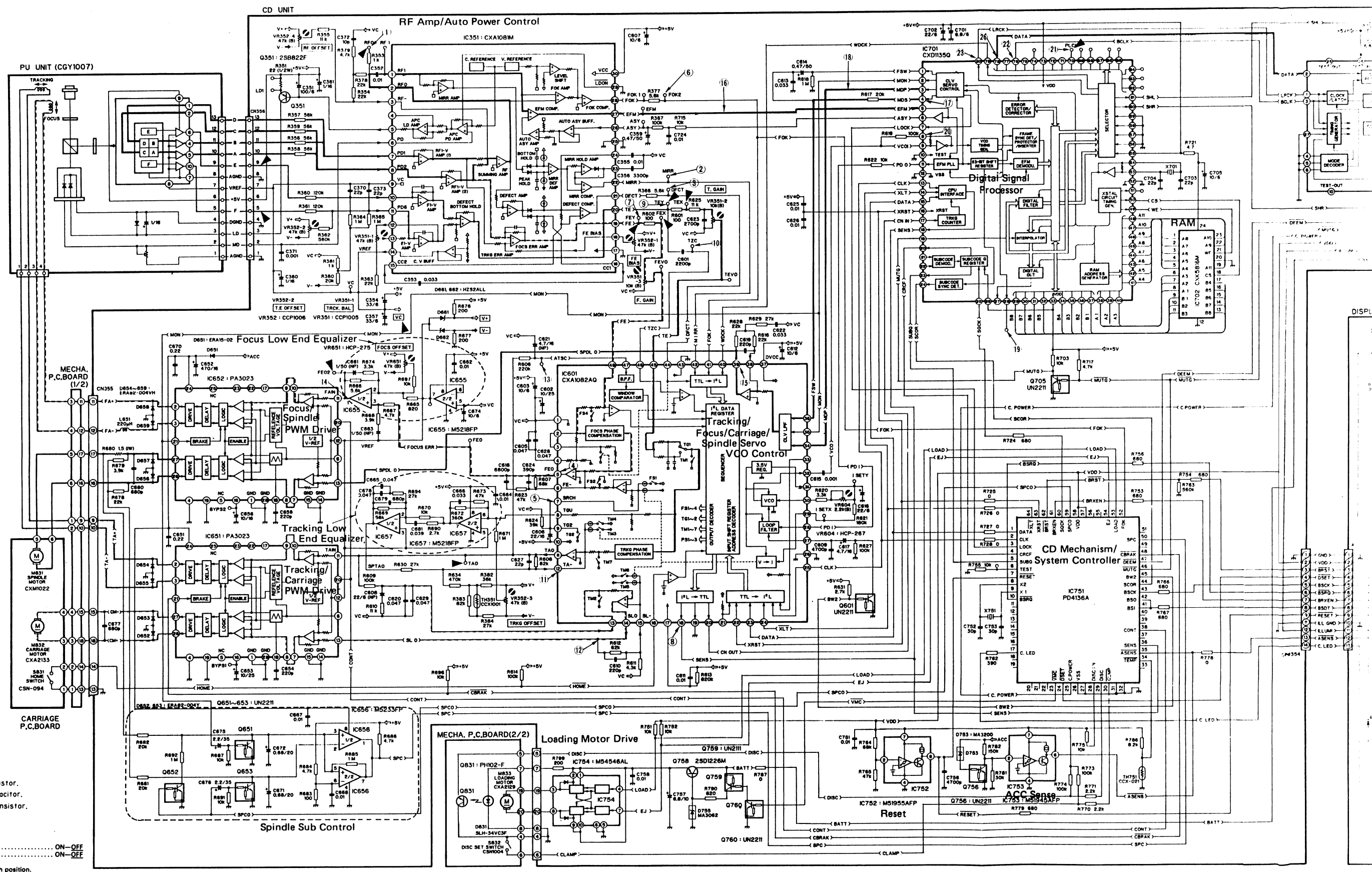
Q903



<http://www.manualscenter.com>

Fig. 51

17. SCHEMATIC CIRCUIT DIAGRAM (CD MECHANISM)

<http://www.manualscenter.com>

NOTE:

- Indicates a chip resistor.
- Indicates a chip capacitor.
- Indicates a chip transistor.

SWITCHES:

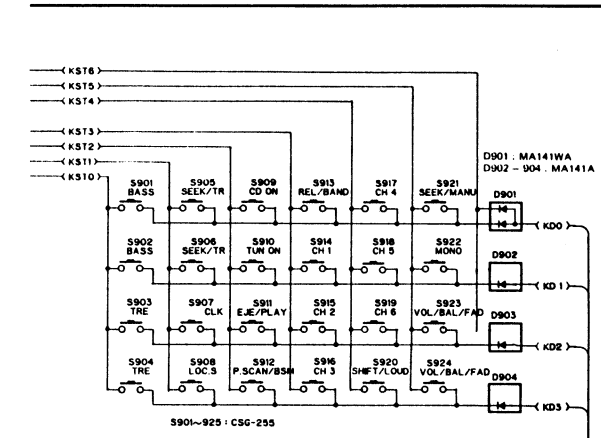
CD MECHA.

S831: HOME SWITCH ON-OFF

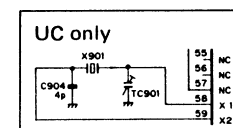
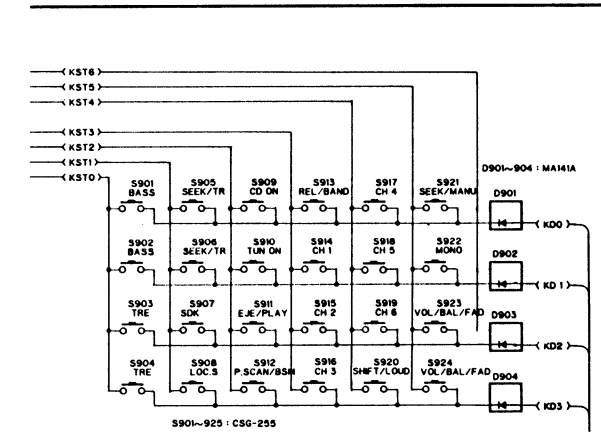
S832: DISC SET SWITCH ON-OFF

The underlined indicates the switch position.

UC



WG



	UC	WG	EW	EI
LCD	CWW1161	CWW1203	CWW1203	CWW1162
IC901	PD4139A	PD4153A	PD4139A	PD4139A

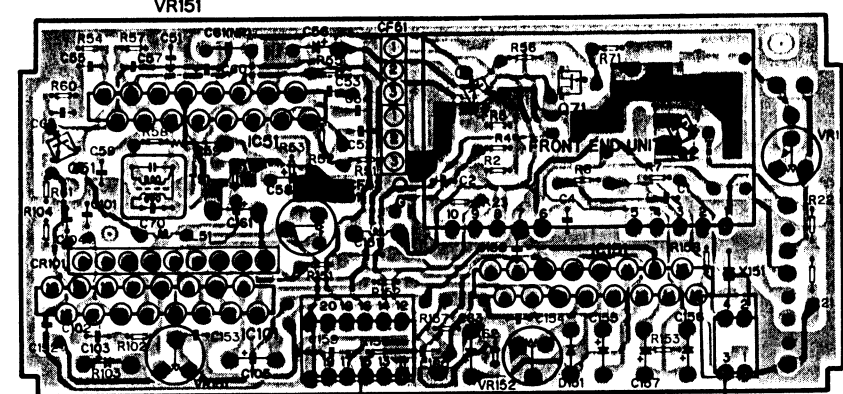
— Signal Route
 Focus Servo Line
 Spindle Servo Line
 Tracking Servo Line
 Carriage Servo Line

Fig. 50

16. CONNECTION DIAGRAM (TUNER DEH-66/EW, EI)

FM UNIT

IC, Q	Q51	IC101 IC51	Q1	Q71 IC151	Q2
ADJ	T51	VR101	VR152		

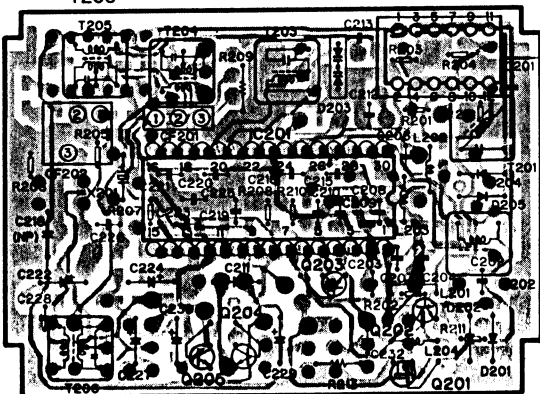


AM UNIT : IC201

1	2	3	4	5	6	7	8	9	10
3.4V	3.4V	0V				6.9V			
11	12	13	14	15	16	17	18	19	20
0V	2.3V	2.3V	8.5V	3.6V	3.6V	4.6V	4.0V	5.3V	4.8V
21	22	23	24	25	26	27	28	29	30
8.2V	8.2V	8.5V	3.3V	0V	8.2V	8.2V	5.4V	5.4V	

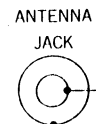
AM UNIT

IC, Q	IC201	Q205 Q204	Q203	Q202
ADJ	T205 T206	T204	T203	Q201

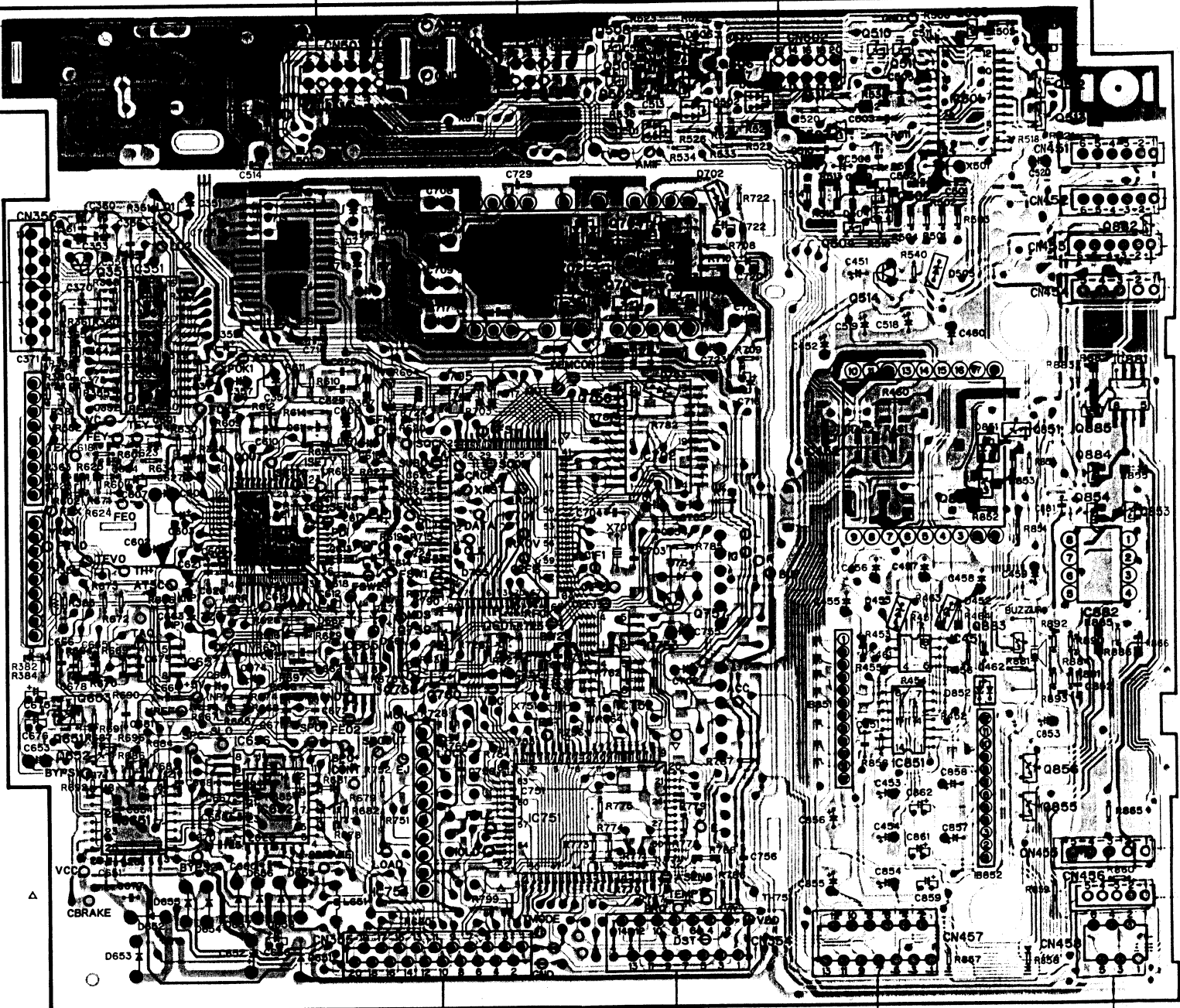
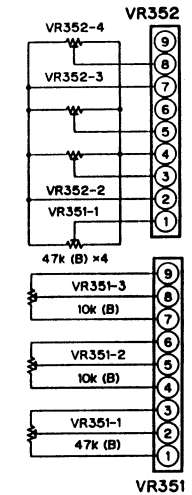


CD UNIT

IC, Q	Q653 Q351	IC351	IC601 IC703	Q758	Q756 IC752	Q757	Q510 Q511	IC501	Q513 Q512	Q882
ADJ	VR352 VR351	Q651 Q652 IC651 IC657	IC656 IC652	IC655 Q705 Q759 Q601	IC751 Q702 IC753 Q704 IC702	Q758 IC754 Q760 IC701	Q508 Q509 Q505	IC451	Q503 Q883	Q885 IC881
				Q758 IC754 Q760 IC701	IC704 Q701	Q706 Q703 Q506		Q507 Q504 IC851 IC452	Q852 Q851	Q856 IC882 Q853



TO PU UNIT



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TO MECHANISM
P.C. BOARD

TO DISPLAY UNIT
CONNECTOR A

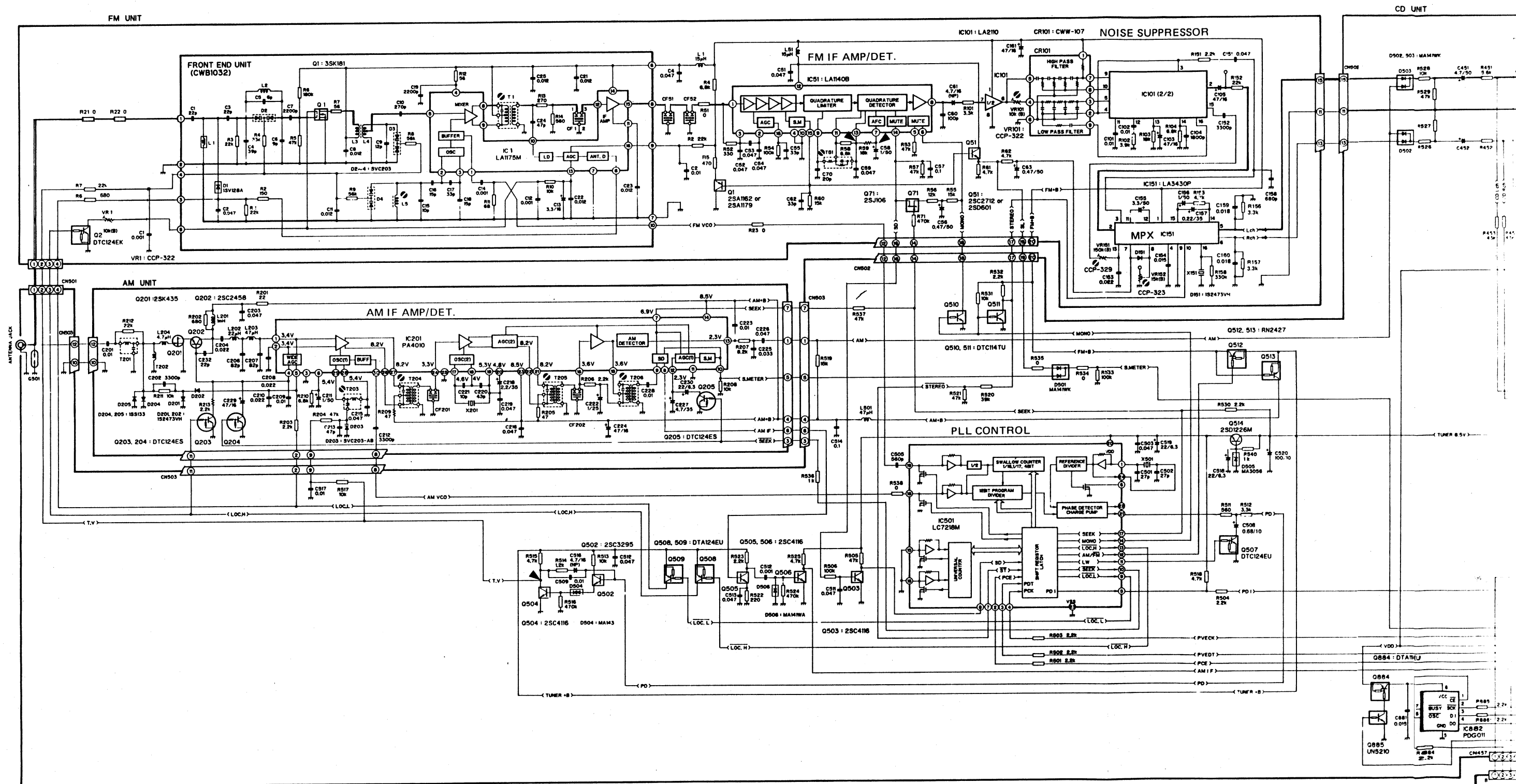
TO DISPLAY UNIT
CONNECTOR B

TO DISPLAY UNIT
CONNECTOR C

<http://www.manualscenter.com>

Fig. 49

15. SCHEMATIC CIRCUIT DIAGRAM (TUNER DEH-66/EW, EI)

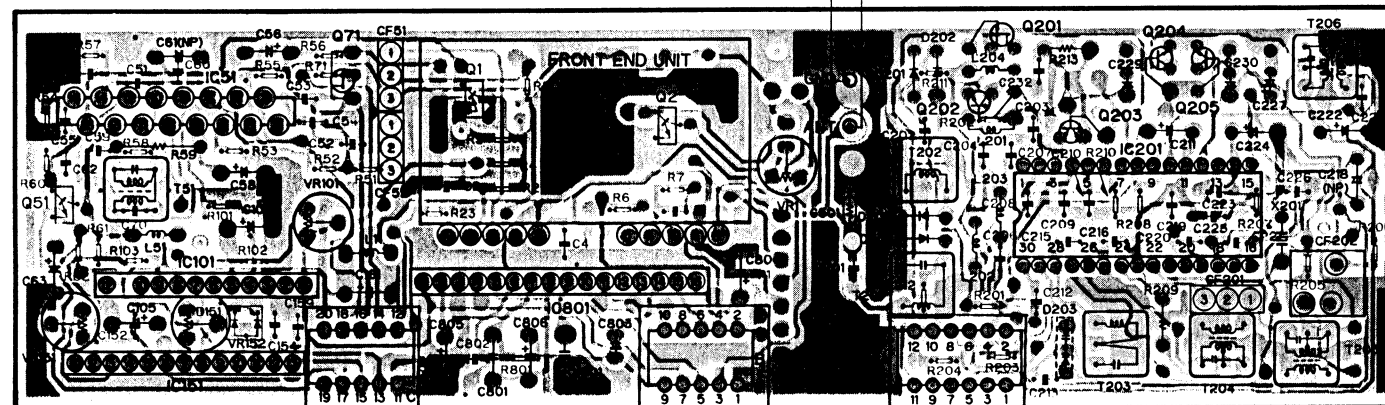




14. CONNECTION DIAGRAM (TUNER DEH-66SDK/WG)

TUNER UNIT

IC, Q Q51 IC151 IC101 IC51 Q71 Q1 IC801 Q2 Q202 Q201 Q203 IC201 Q204 Q205 T203 T204 T205 T206
 ADJ VR151 T51 VR152 VR101

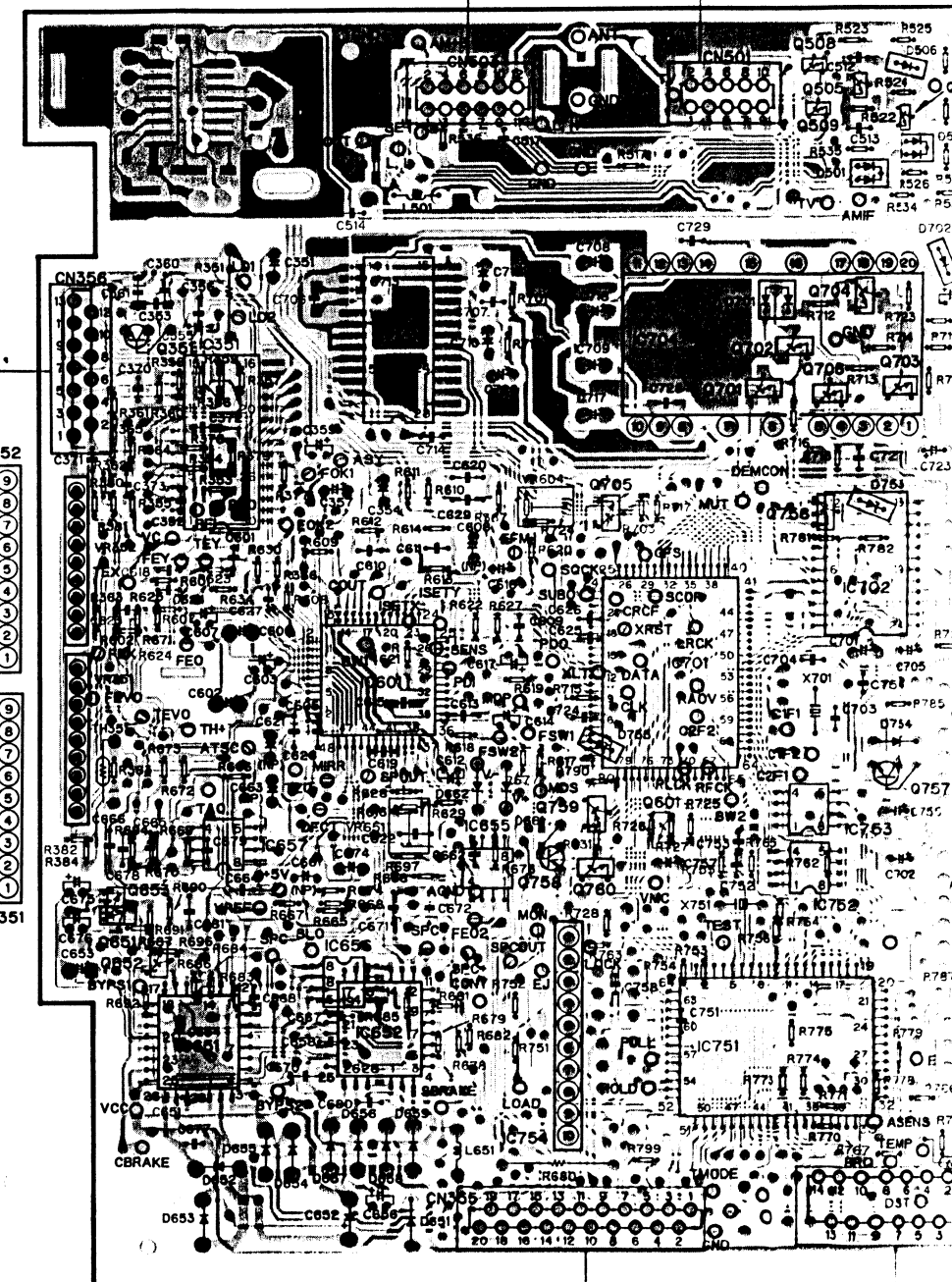


AMUNIT : IC201

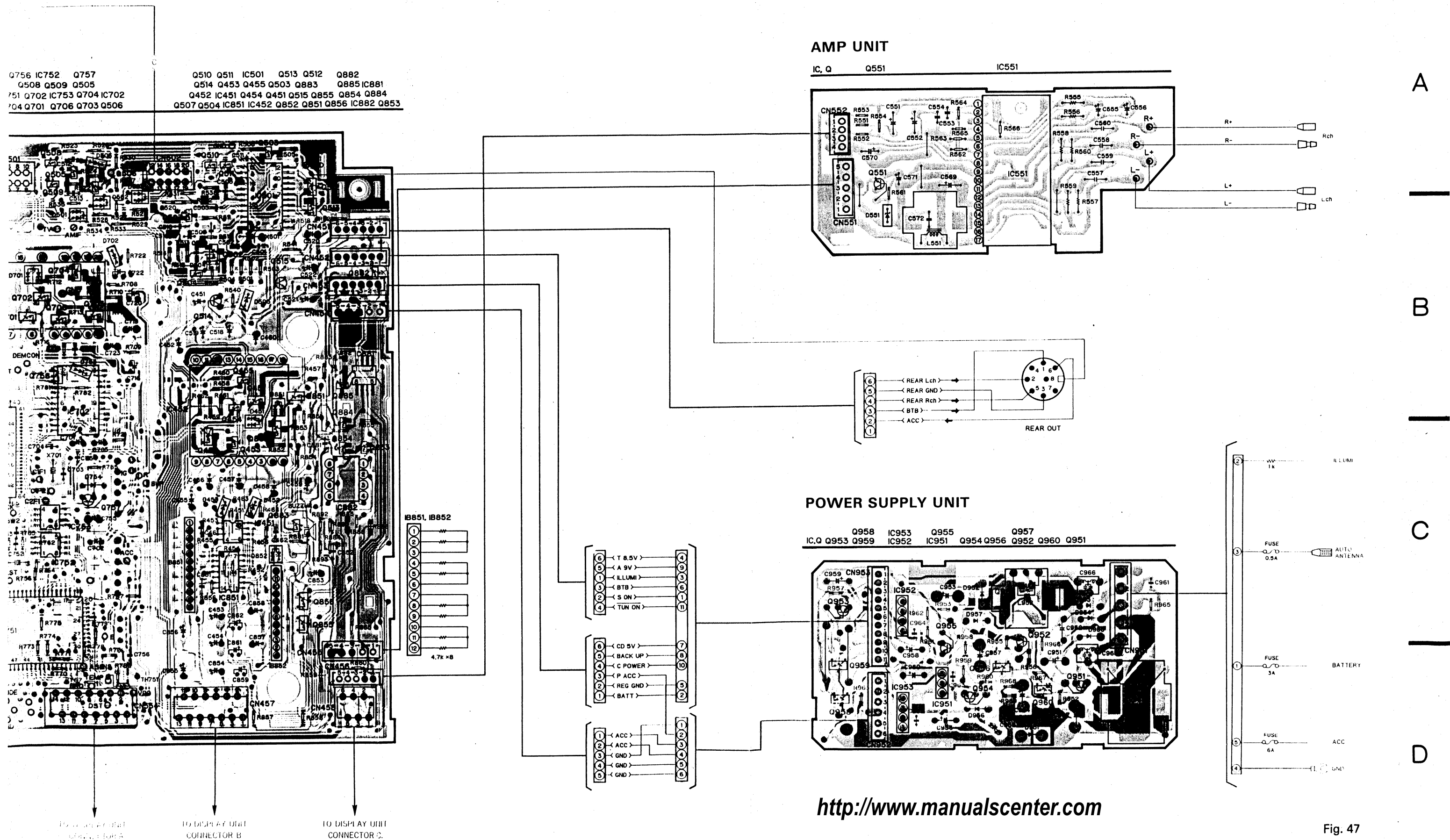
1	2	3	4	5	6	7	8	9	10
3.4V	3.4V	0V				6.9V			
11	12	13	14	15	16	17	18	19	20
0V	2.3V	2.3V	8.5V	3.6V	3.6V	4.6V	4.0V	5.3V	4.0V
21	22	23	24	25	26	27	28	29	30
8.2V	8.2V	8.5V	3.3V	0V	8.2V	8.2V	5.4V	5.4V	2.7V

CD UNIT

Q653 Q351 IC351 IC601 IC703 Q758 Q756 IC752 Q757 Q508 Q509 Q505
 IC, Q Q651 Q652 IC651 IC657 IC656 IC652 Q758 IC754 Q760 IC701 IC751 Q702 IC753 Q704 IC705
 ADJ VR352 VR351 VR651 VR604



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<http://www.manualscenter.com>

Fig. 47



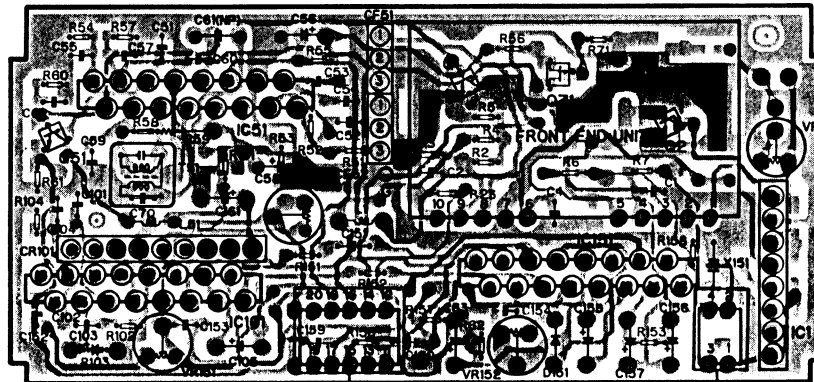
<http://www.manualscenter.com>

Fig. 46

12. CONNECTION DIAGRAM (TUNER DEH-66/UC)

FM UNIT

IC, Q Q51 IC101 IC51 Q1 Q71 IC151 Q2 IC1
ADJ T51 VR101 VR152

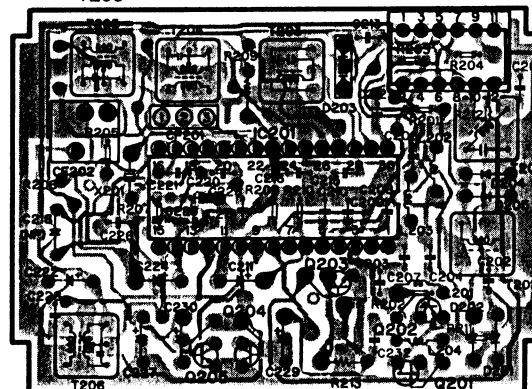


AM UNIT : IC201

1	2	3	4	5	6	7	8	9	10
3.4V	3.4V	0V				6.9V			
11	12	13	14	15	16	17	18	19	20
0V	2.3V	2.3V	8.5V	3.6V	3.6V	4.6V	4.0V	5.3V	4.8V
21	22	23	24	25	26	27	28	29	30
2.2V	8.2V	8.5V	3.3V	0V	8.2V	8.2V	5.4V	5.4V	

AM UNIT

IC, Q IC201 Q205 Q204 Q203 Q202 Q201
ADJ T205 T204 T203



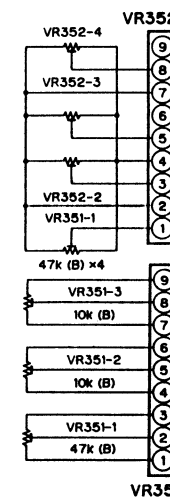
CD UNIT

Q653 Q351 IC351 IC601 IC703
IC, Q Q651 Q652 IC651 IC657 IC656 IC652
ADJ VR352 VR351 VR651 VR604

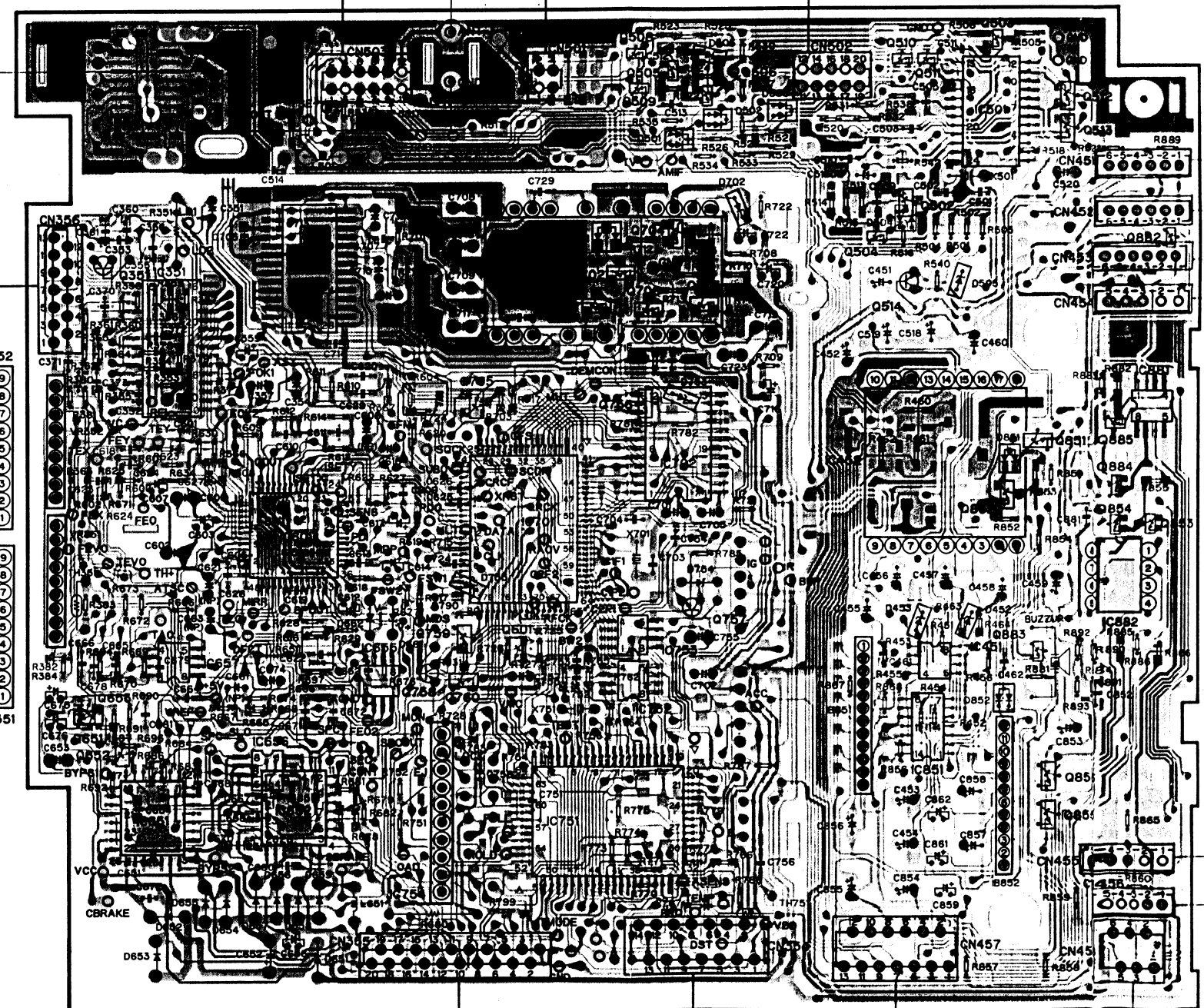
ANTENNA JACK



TO PU UNIT



VR351



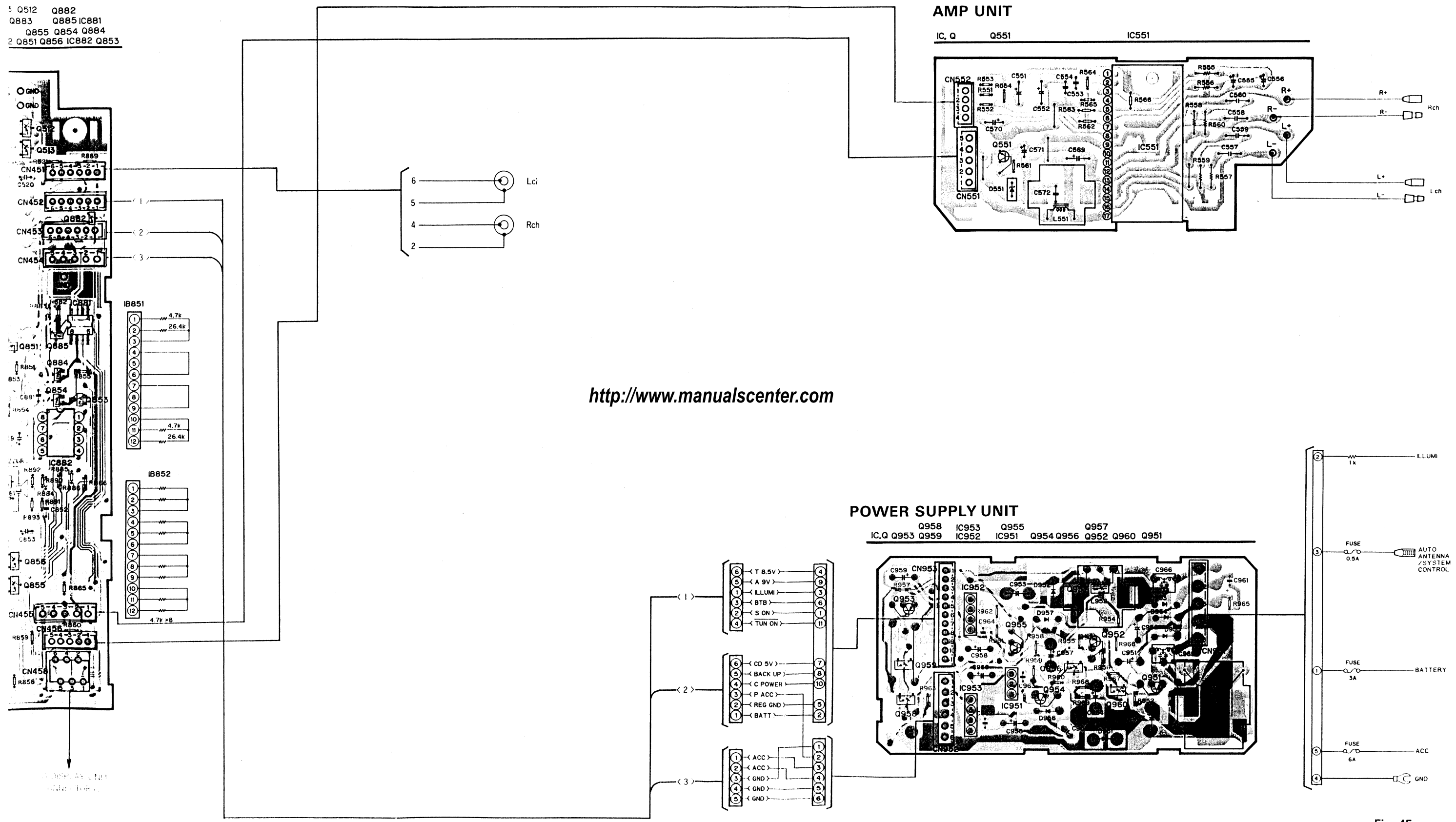
TO MECHANISM
P.C. BOARD

TO DISPLAY UNIT
CONNECTOR A

TO DISPLAY UNIT
CONNECTOR B

TO DISPLAY UNIT
CONNECTOR C

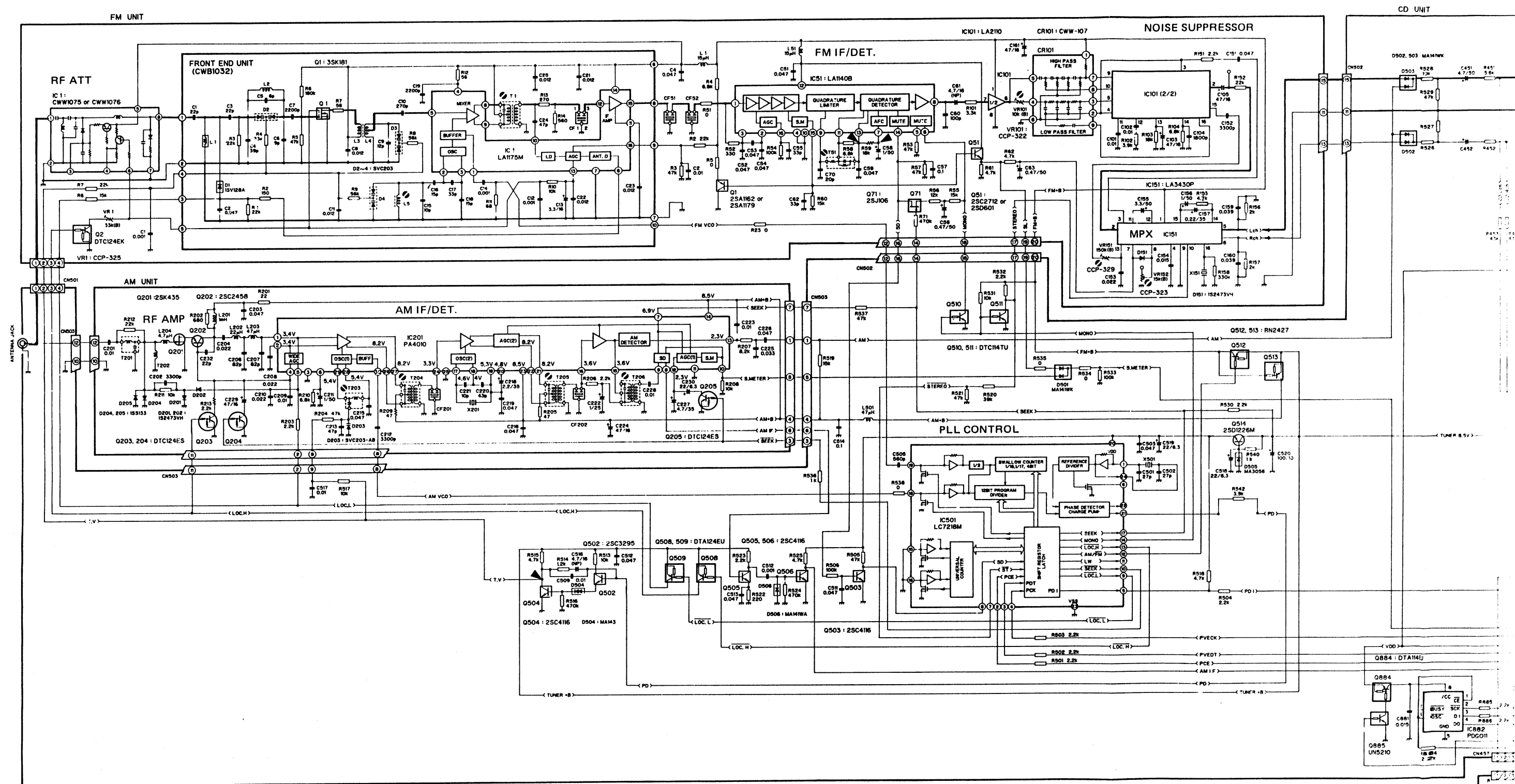
<http://www.manualscenter.com>

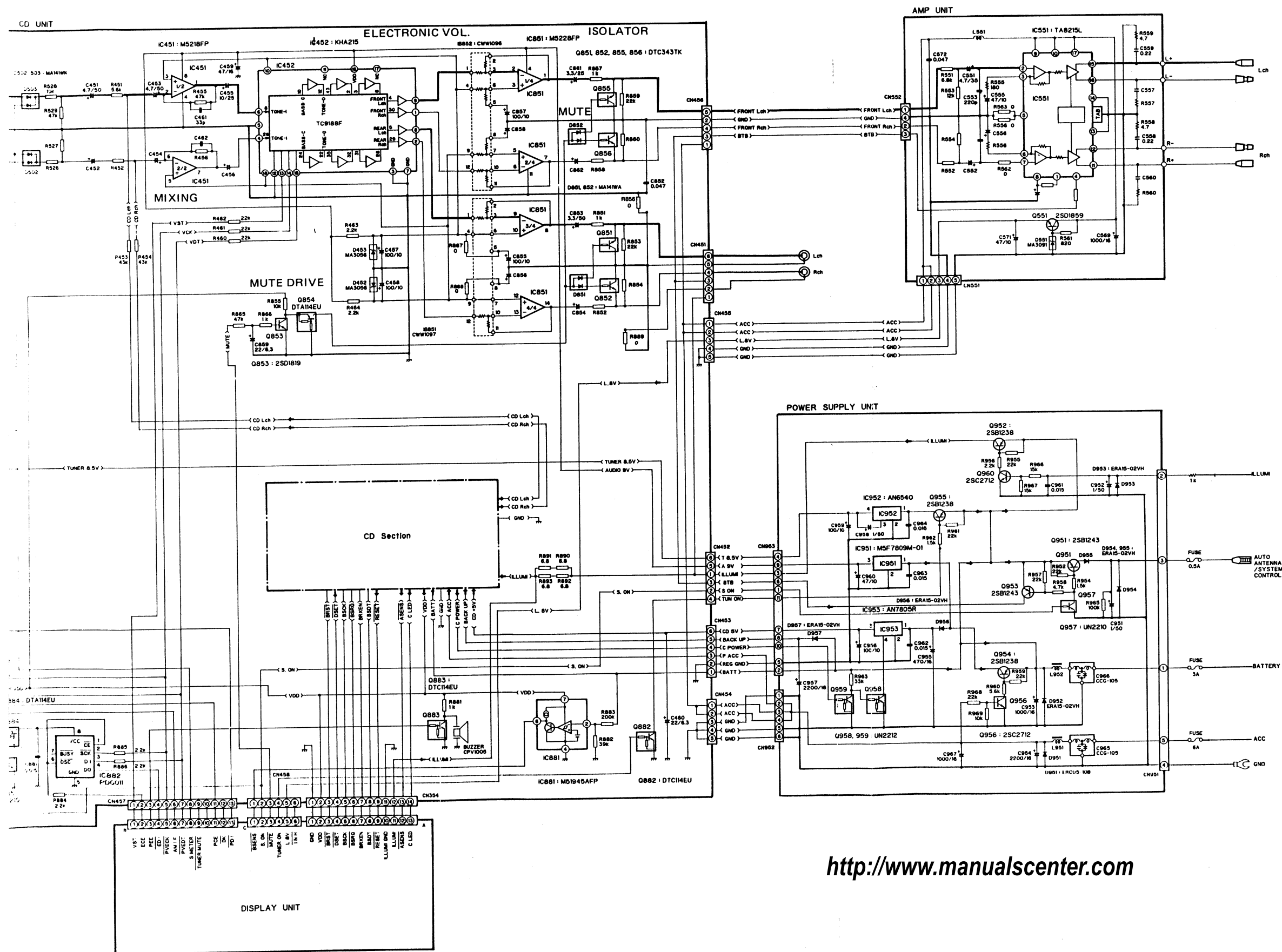


<http://www.manualscenter.com>

Fig. 45

11. SCHEMATIC CIRCUIT DIAGRAM (TUNER DEH-66/UC)





<http://www.manualscenter.com>

NOTE:
 — Indicates a chip resistor.
 — Indicates a chip capacitor.
 — Indicates a chip transistor.

Fig. 44

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description	
	58		Plug		93		Plug	
	59		Case		94	CKS1328	Connector	
	60	BMZ30P060FMC	Screw		95		Spacer	
	61		Heat Sink		96		Insulator	A
	62	BMZ30P040FMC	Screw		97	BMZ26P040FMC	Screw	
	63		Holder		98		Cushion	
	64		Film		99		Plate	
	65		Holder		100		Plate	
	66		Film		101		Holder	
●	67	CWH1056	Amp Unit		102		Chassis Unit(UC)	—
	68	CDE1771	Cord				Chassis Unit(WG, EW, EI)	
	69		Plug		103		Side Cover	
	70		Plug		104	CDH1068	Antenna Cable(UC, EW, EI)	
	71	PMS30P100FMC	Screw		105	CDH1067	Antenna Cable(WG)	
	72	CNC1859	Holder		106		Case	
	73		Side Cover		107		Insulator(WG)	B
	74		Connector		108		Bracket	
●	75	CWE1105	Tuner Unit(WG)		109	CDE1775	Cord(UC)	
	76	BMZ30P050FMC	Screw(UC, EW, EI)		110	CNW-829	Cap(UC)	
		PMS30P050FMC	Screw(WG)		111	CNC1484	Holder	
	77		Holder(UC, EW, EI)		112	CNS1403	Panel	
	78		Plug		113	CNC1631	Holder	
	79		Connector		114	CDE1772	Cord(WG, EW, EI)	—
	80		Plug		115	CBH-865	Spring	
	81		Plug		116	CNV1455	Cap(WG, EW, EI)	
	82	CPV1005	Buzzer	●	117	CWE1096	FM Unit(UC)	
	83		Plug	●		CWE1097	FM Unit(EW, EI)	
	84		Plug		118		Holder(UC, EW, EI)	
	85	CKS1075	Connector		119	CWB1032	Front End Unit	C
	86	CKS1082	Connector		120		Insulator(UC, EW, EI)	
	87	CKS1083	Connector		121		Connector(UC, EW, EI)	
	88	CKS1415	Connector		122		Connector(UC, EW, EI)	
	89	CSS1030	Xtal Resonator					
●	90	CWX1114	CD Unit(UC)	●	123	CWA1007	AM Unit(UC, EW, EI)	
●		CWX1123	CD Unit(WG)	●	124	CXK2200	CD Mechanism Unit	
●		CWX1119	CD Unit(EW, EI)		125		Cushion	—
	91		Plug		126	PMF26P060FMC	Screw	
	92		Plug, 4P(UC, EW, EI)		127		Connector	
			Plug, 10P(WG)					

D

• Exploded View

<http://www.manualscenter.com>

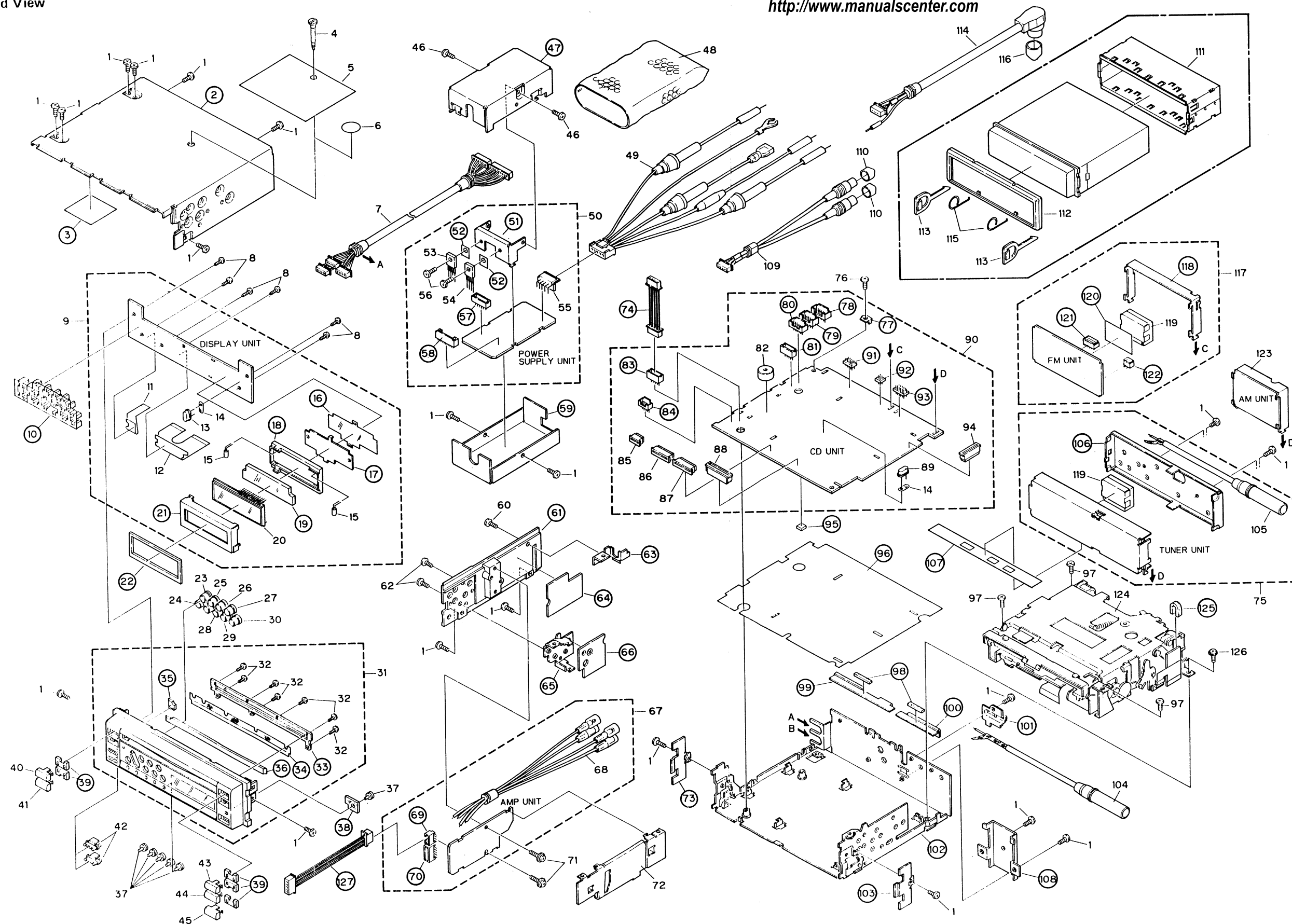
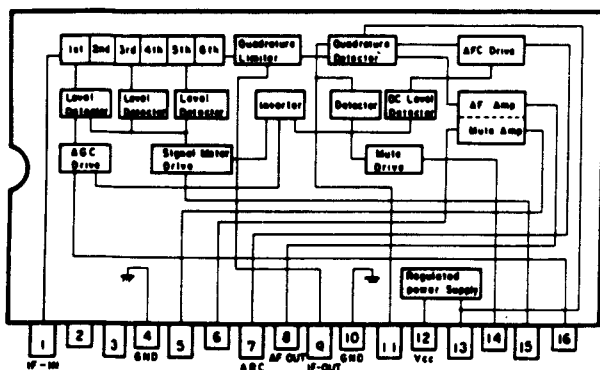


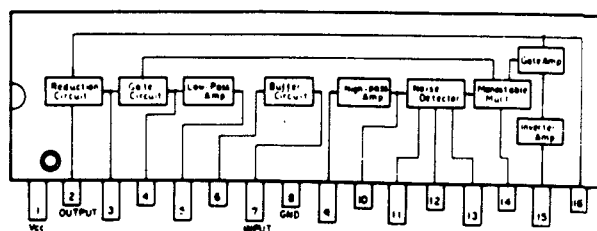
Fig. 52

- **FM Unit**

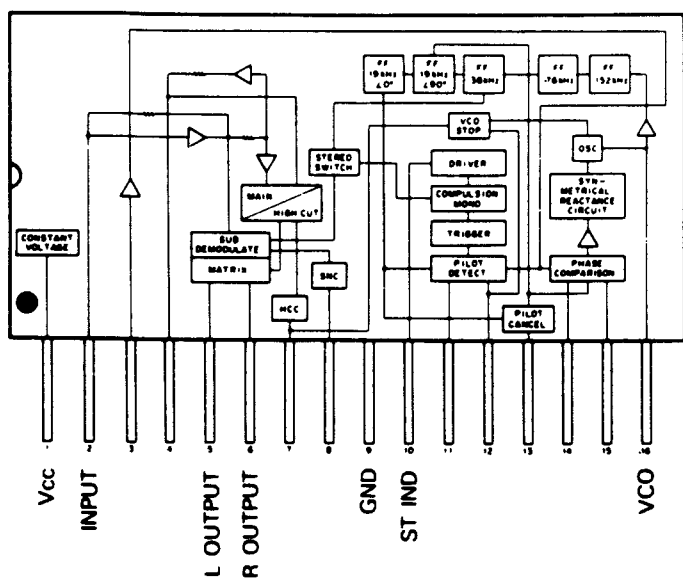
IC51:LA1140B



IC101:LA2110

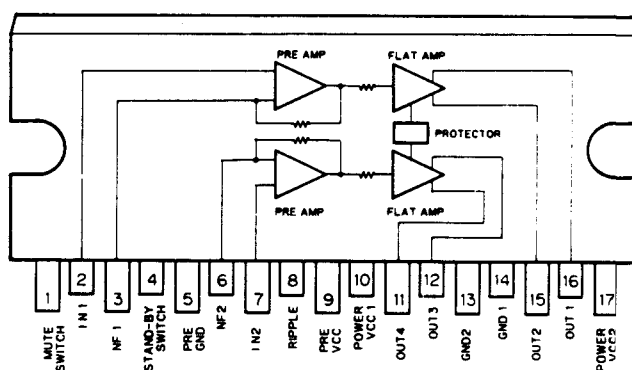


IC151:LA3430P



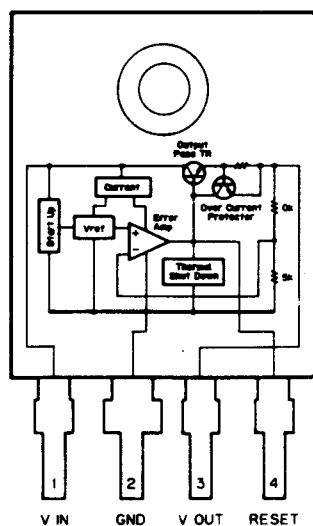
- **AMP Unit**

IC551:TA8215L

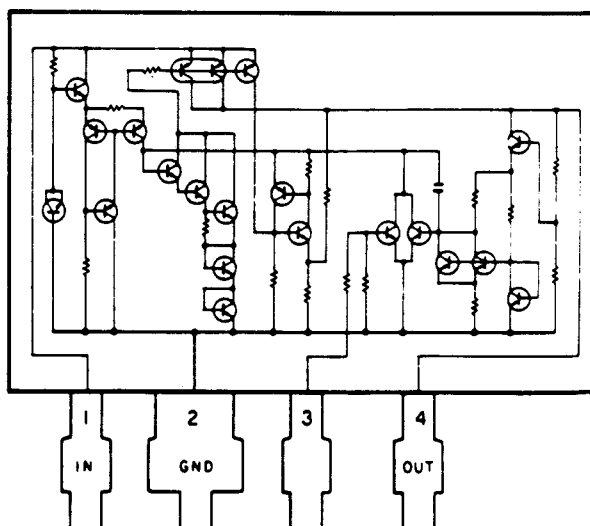


- **Power Supply Unit**

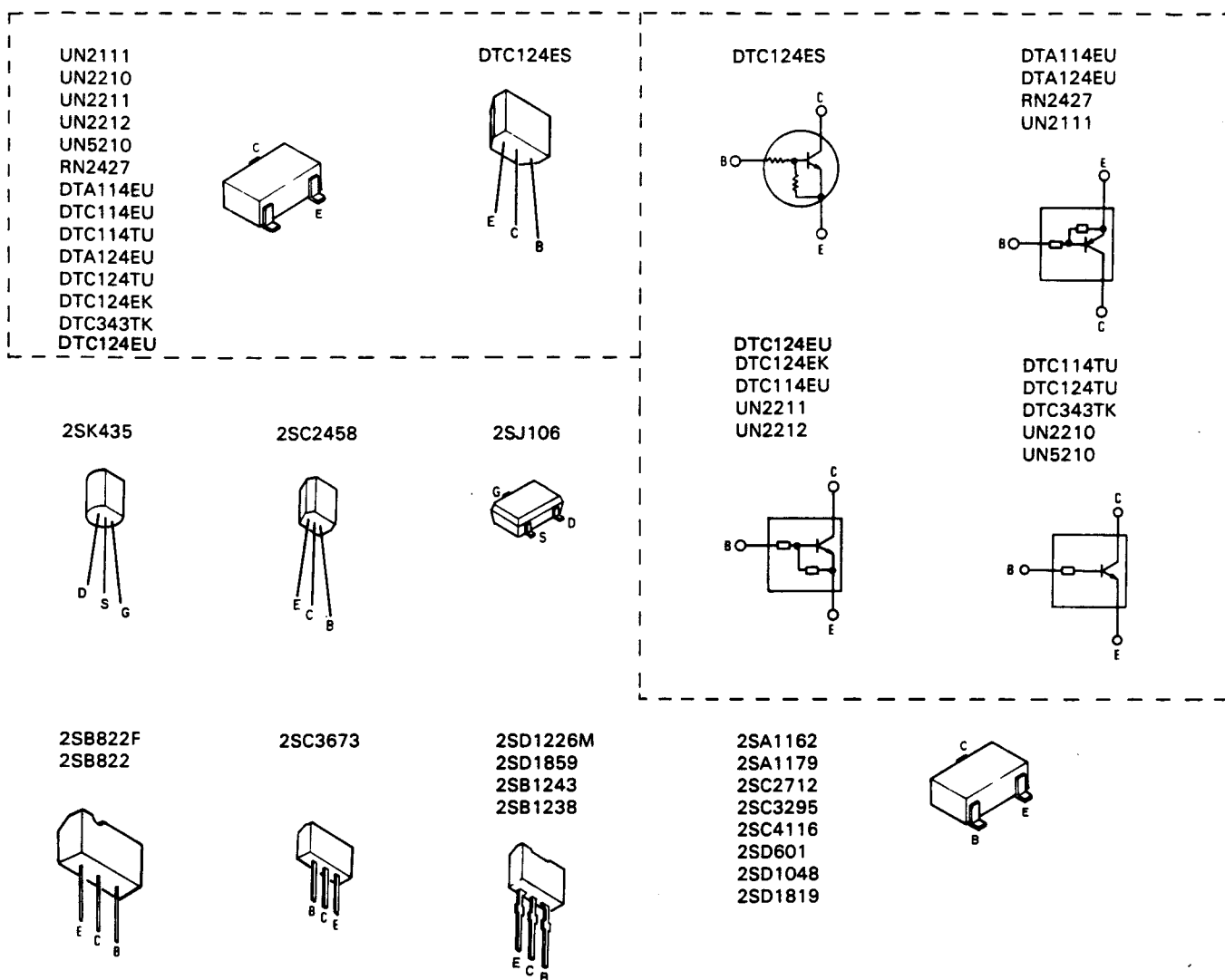
IC953 : AN7805R



IC952 : AN6540

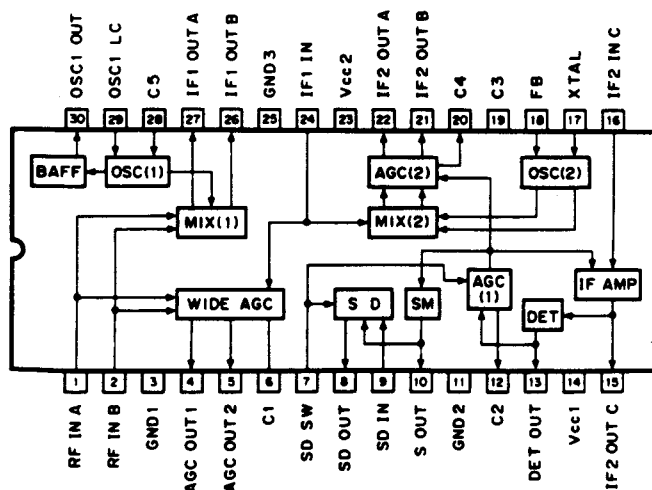


• ICs and Transistors



• AM Unit

IC201: PA4010



2SJ105

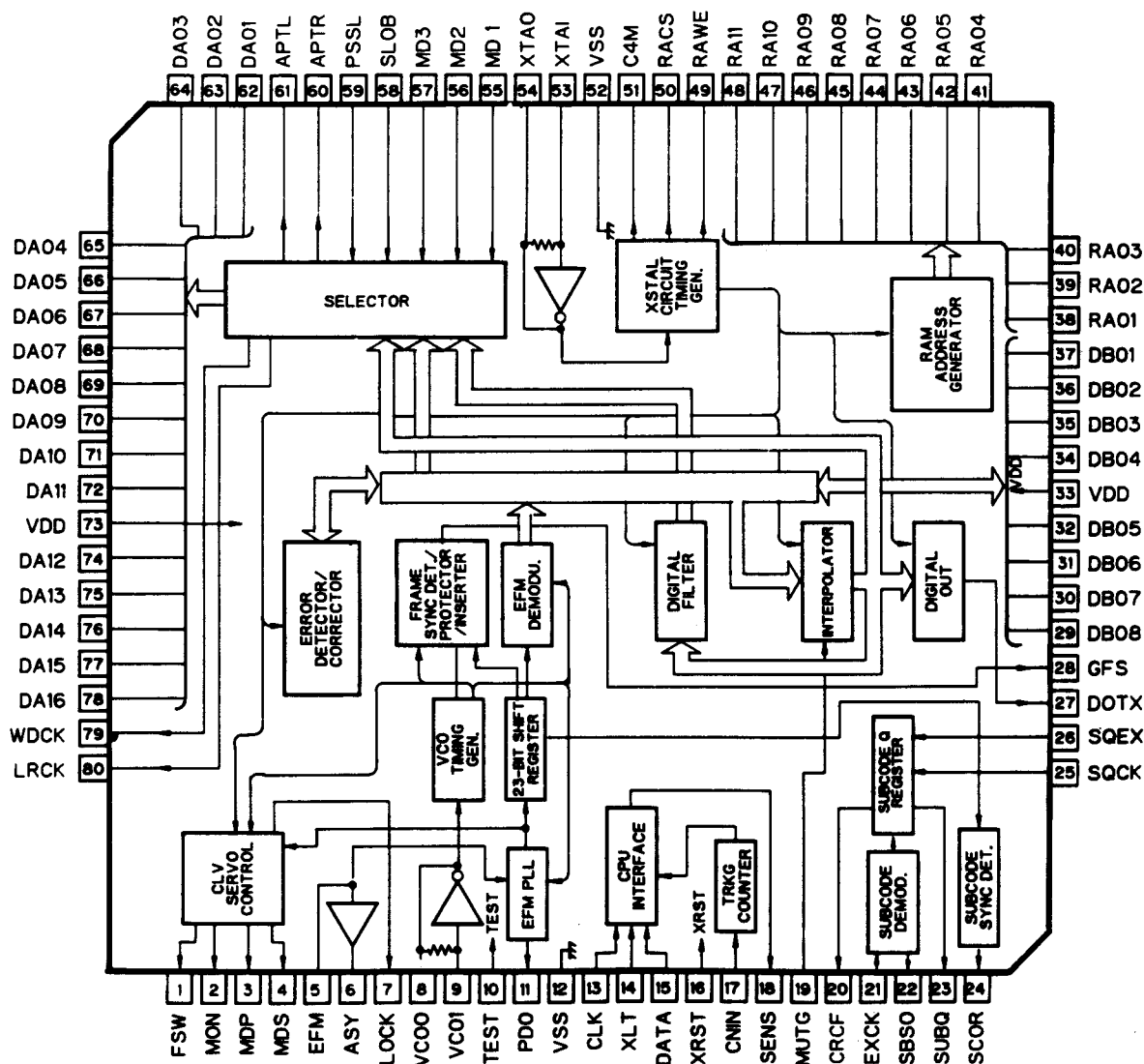


● Pin Functions (CXD1135Q)

Pin No.	Pin Name	I/O	Function and Operation
1	FSW	Output	Spindle motor output filter time constant selector output
2	MON	Output	Spindle motor ON/OFF control output
3	MDP	Output	Spindle motor drive output - "rough" control in CLV-S mode, and phase control in CLV-P mode
4	MDS	Output	Spindle motor drive output - speed control in CLV-P mode
5	EFM	Input	EFM signal input from RF amplifier
6	ASY	Output	EFM signal slice level control output
7	LOCK	Output	Sampling of GFS signal by WFCK/16 - "H" output if "H", "L" output if "L" detected eight times in succession
8	VCOO	Output	VCO output - $f = 8.6436\text{MHz}$ when EFM signal is locked
9	VCOI	Input	VCO input
10	TEST	Input	(0V)
11	PDO	Output	EFM signal and VCO/2 phase comparison output
12	V _{SS}	—	Ground (0V)
13	CLK	Input	Serial data transfer clock input from CPU - data latched by clock leading edge
14	XLT	Input	Latch input from CPU - 8-bit shift register data (serial data from CPU) is latched in each register.
15	DATA	Input	Serial data input from CPU
16	XRST	Input	System reset signal input - reset when "L"
17	CNIN	Input	Tracking pulse input
18	SENS	Output	Output of internal status according to address
19	MUTG	Input	Muting input - when ATTM of internal register A is "L", MUTG "L" denotes normal status, and "H" muted status
20	CRCF	Output	Sub-code Q CRC check result output
21	EXCK	Input	Clock input for sub-code serial output
22	SBSO	Output	Sub-code serial output
23	SUBQ	Output	Sub-code Q output
24	SCOR	Output	Sub-code synchronizing S0 + S1 output
25	SQCK	Input/Output	Sub-code Q read clock
26	SQEX	Input	SQCK selector input
27	DOTX	Output	Digital out output ($\overline{\text{WFCK}}$ output)
28	GFS	Output	Frame synchronizing lock status indicator output
29	DB08	Input/Output	External RAM data pin - DATA8 (MSB)
30	DB07	Input/Output	External RAM data pin - DATA7
31	DB06	Input/Output	External RAM data pin - DATA6
32	DB05	Input/Output	External RAM data pin - DATA5
33	V _{DD}	—	Power supply (+5V)
34	DB04	Input/Output	External RAM data pin - DATA4
35	DB03	Input/Output	External RAM data pin - DATA3

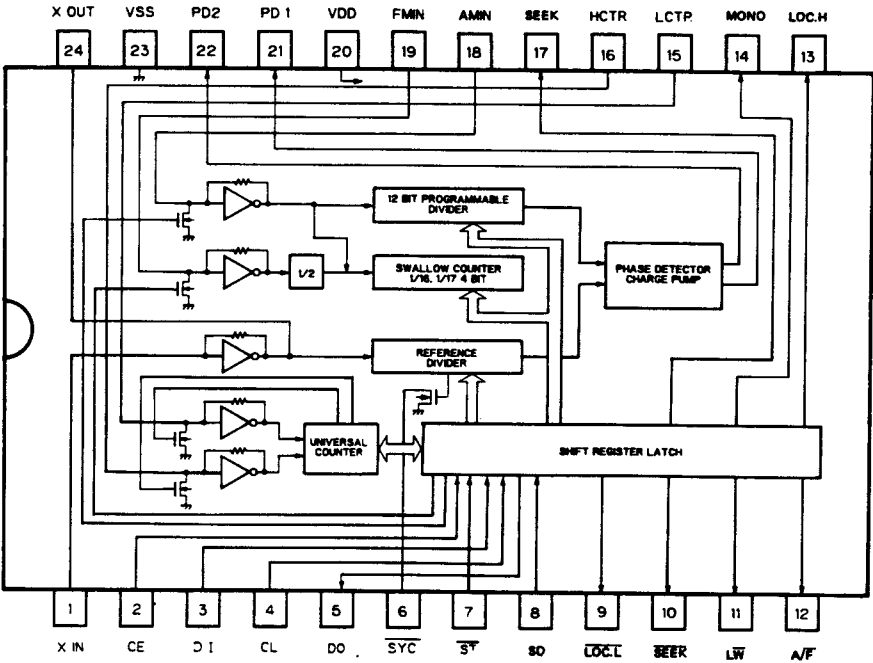
Pin No.	Pin Name	I/O	Function and Operation
39	SPDLO	Output	Spindle drive output
40	WDCK	Input	Auto-sequence clock input 176.4kHz
41	FOK	Input	FOK signal input pin
42	MIRR	Input	Mirror signal input pin
43	DVEE		DGND connection
44	DFCT	Input	DEFECT signal input pin - defect countermeasure circuit activated when this input is high
45	TE	Input	Tracking error signal input pin
46	TZC	Input	Tracking zero-cross comparator input pin
47	ATSC	Input	Tracking lens offset detector window comparator input pin
48	FE	Input	Focus error signal input pin

*IC701: CXD1135Q

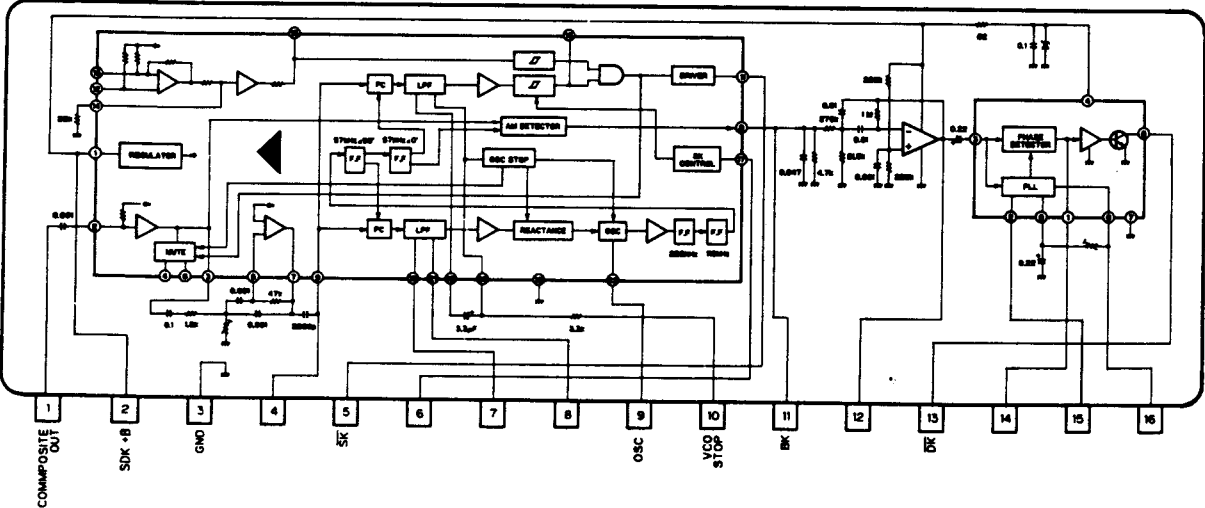


Pin No.	Pin Name	I/O	Function and Operation				
29	DISC	CMOS IN	Disc sensor input	"H"=Disc loaded			
30	CLMP	CMOS IN	Disc clamped input	"L"=Disc clamped			
34	TEMP	INPUT	High temperature detector				
35	ACENS	CMOS IN	ACC sens input	"L"=ACC ON			
36	SENS	CMOS IN	CD LSI internal status monitor input				
38	CONT	CMOS OUT	PWM driver ON/OFF	"H"=ON			
41	BSI	CMOS IN	Bus data input				
42	BSO	CMOS OUT	Bus data output				
43	BSCK	IN/OUT	Bus serial clock	CMOS Input/Output			
44	SCOR	CMOS IN	Sub-code synchronization input				
45	BW2	OUTPUT	Spindle motor output filter time constant selection output Neutral resistivity N channel open drain				
46	MUTG	OUTPUT	Muting output	"L"=Mute ON			
47	DEEM	OUTPUT	Emphasis selector output "H"=Emphasis ON Neutral resistivity N channel open drain				
48	CBRAK	OUTPUT	PWM driver brake control	"L"=Brake ON			
50	SPC	CMOS IN	Spindle motor rpm indicator	"L"=Low speed			
52	FOK	CMOS IN	Indication that focus is closed and RF input is active				
53	LOAD	OUTPUT	Moter drive output Neutral resistivity N channel open drain	LOAD	H	L	H
54	EJ			EJ	L	H	H
					Load	Eject	Stop
58	VDD	—					
59	SPCO	CMOS OUT	Spindle motor rpm sensor circuit ON/OFF				
60	SQCK	CMOS OUT	Sub-code clock				
61	BRXEN	CMOS OUT	Bus reception enable output				"Hi-Z"= Reception enable
62	BRST	CMOS IN	Bus reset				
63	XRST	CMOS OUT	CD LSI reset output				"L"=Reset
64	XLT	CMOS OUT	Serial data latch output				

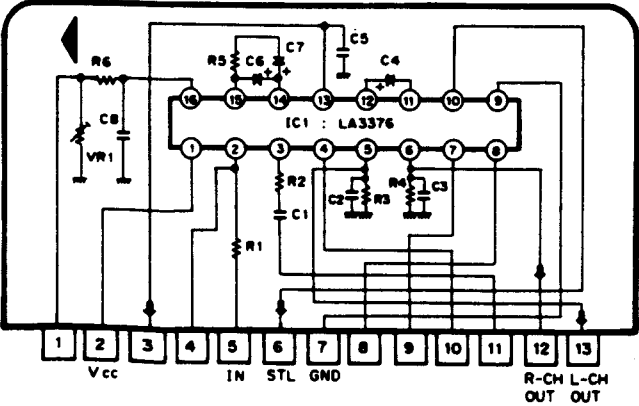
IC501 : LC7218M



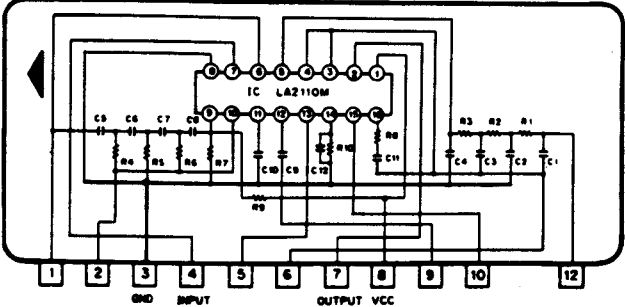
KHA142(Tuner Unit WG)



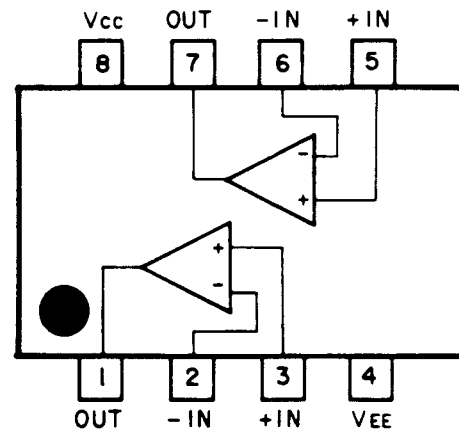
MX3S400(Tuner Unit WG)



KHA115(Tuner Unit WG)



IC902: NJM2903M

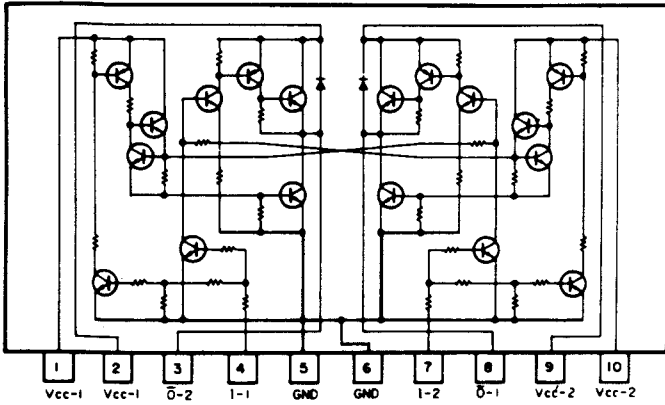


**IC's marked by * are MOS type.
Be careful in handling them because they are very
liable to be damaged by electrostatic induction.**

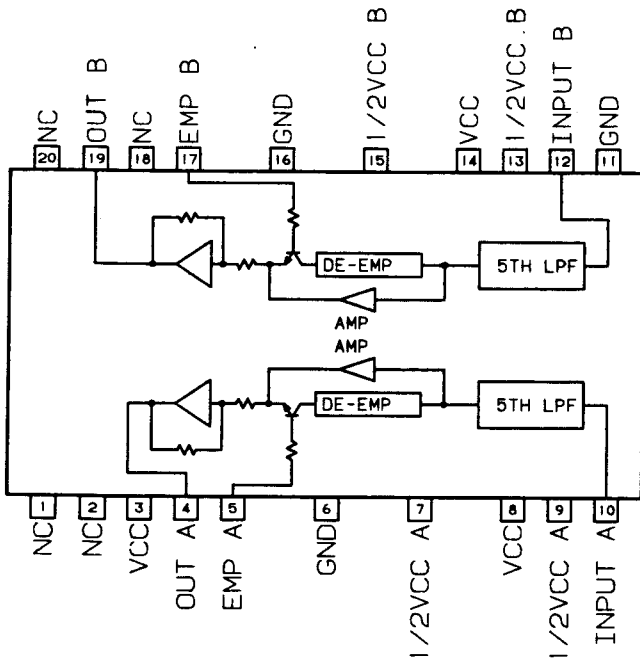


● CD Unit

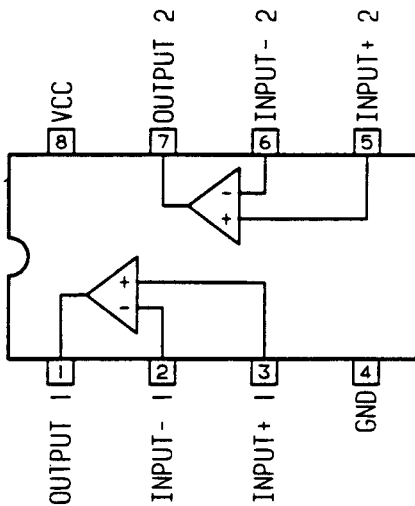
IC754:M54546AL



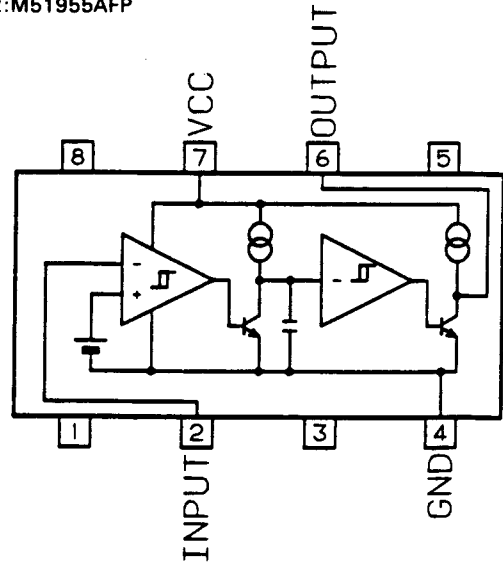
IC704:KHA220



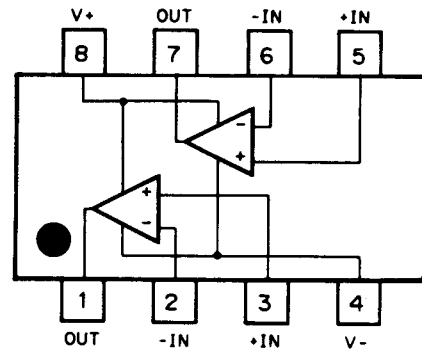
IC656:M5233FP



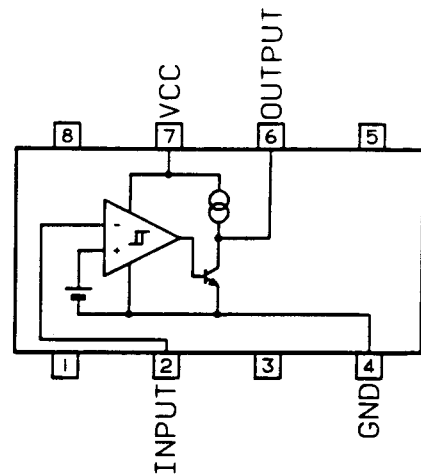
IC752:M51955AFP



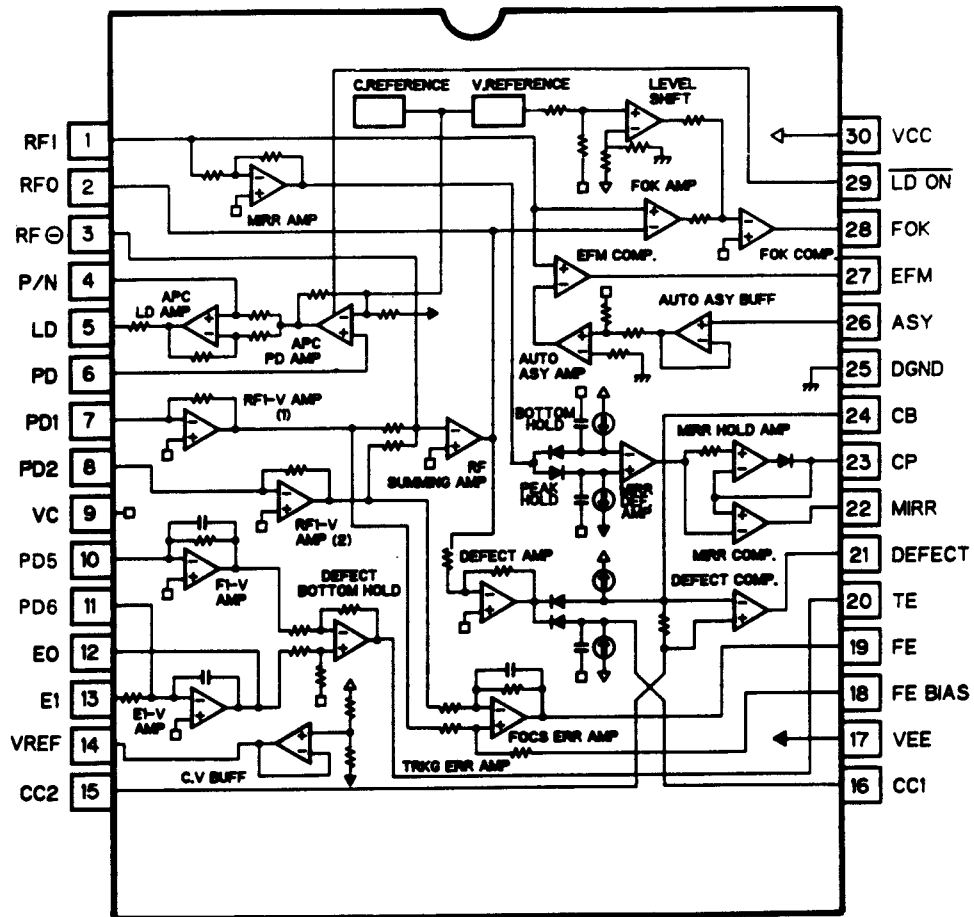
IC451,655,657:M5218FP



IC753,881:M51945AFP

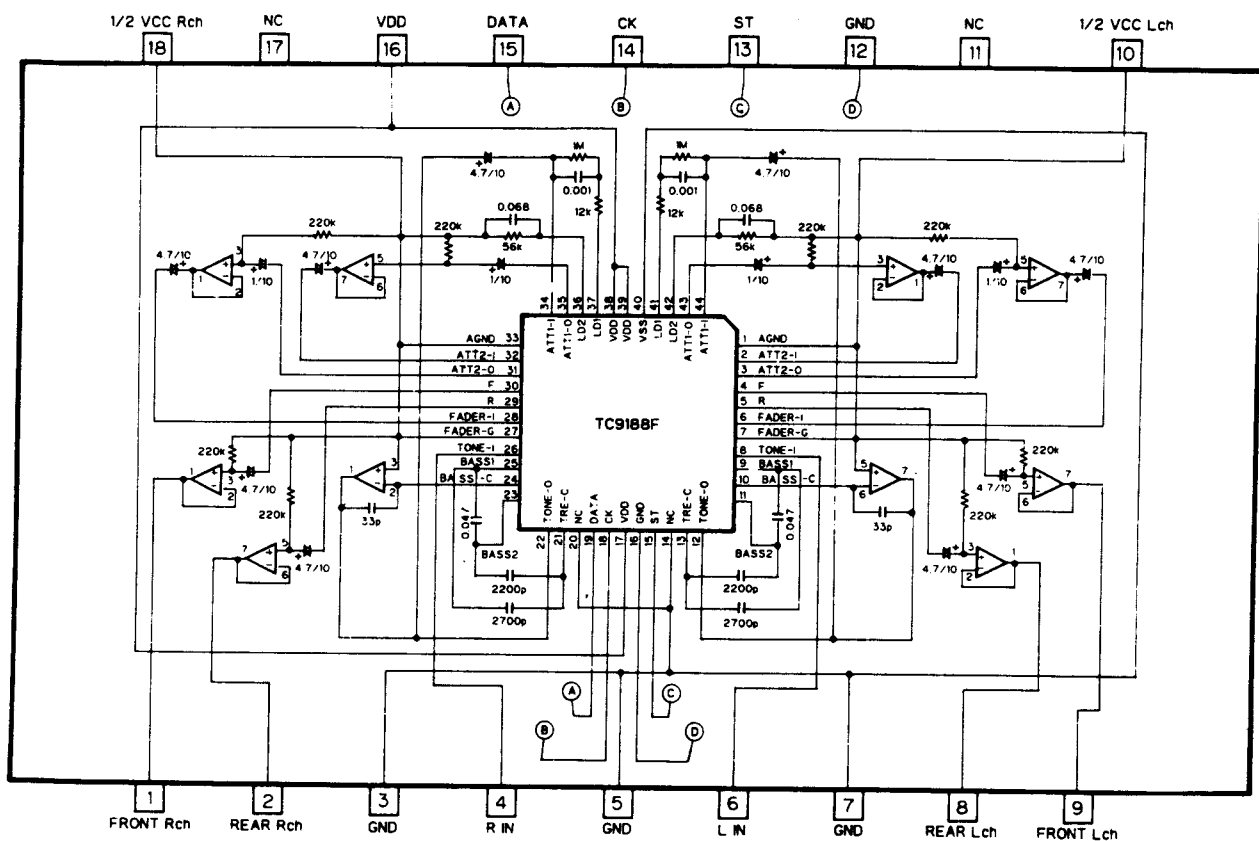


*IC351 : CXA1081M



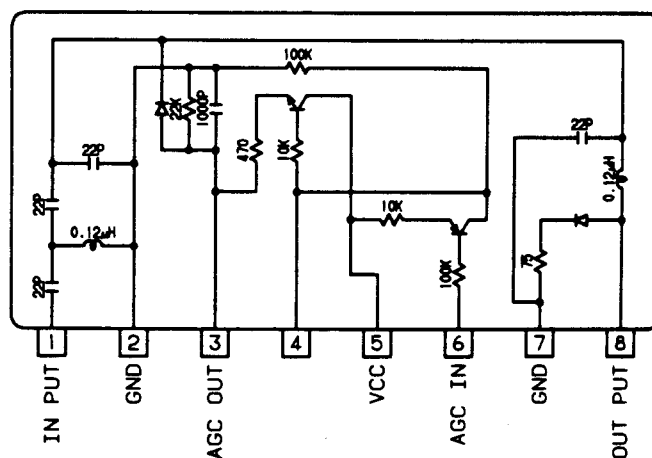
● Pin Functions (CXA1081M)

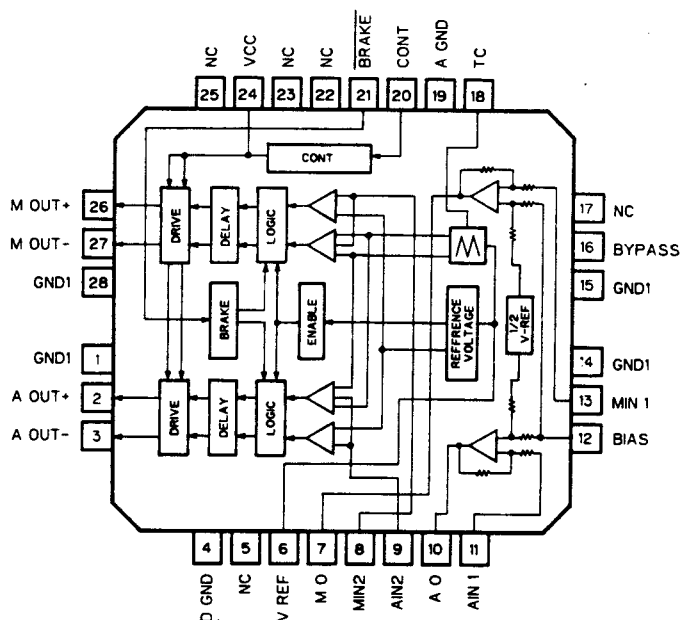
Pin No.	Pin Name	I/O	Function and Operation
1	RFI	Input	Input of capacitance-coupled RF summing amplifier output
2	RFO	Output	RF summing amplifier output pin - eye pattern check point
3	RF -	Input	RF summing amplifier feedback input pin
4	P/N	Input	Laser diode P-sub/N-sub selector pin
5	LD	Output	APC LD amplifier output pin
6	PD	Input	APC PD amplifier input pin
7	PD1	Input	RF I-V amplifier (1) inverter input pin - connected to photodiode A + C pin for current input
8	PD2	Input	RF I-V amplifier (2) inverter input pin - connected to photodiode B + D pin for current input
9	VC		Connected to VR
10	F	Input	I-V amplifier inverter input pin - connected to photodiode for current input
11	E	Input	I-V amplifier inverter input pin - connected to photodiode for current input
12	EO	Output	E I-V amplifier output pin
13	EI	Input	E I-V amplifier feedback input pin for E I-V amplifier gain adjustment
14	VR	Output	$(V_{CC} + V_{EE})/2$ DC voltage output pin
15	CC2	Input	Input of capacitance-coupled DEFECT bottom hold output
16	CC1	Output	DEFECT bottom hold output pin
17	VEE		Ground connection
18	FE BIAS	Input	Focus error amplifier non-inverting bias pin Used in focus error amplifier CMR adjustment
19	FE	Output	Focus error amplifier output pin
20	TE	Output	Tracking error amplifier output pin
21	DEFECT	Output	DEFECT comparator output pin
22	MIRR	Output	MIRR comparator output pin
23	CP	Input	MIRR hold capacitor connector pin - MIRR comparator non-inverting input pin
24	CB	Input	DEFECT bottom hold capacitor connector pin
25	DGND		Ground connection
26	ASY	Input	Auto asymmetry control input pin
27	EFM	Output	EFM comparator output pin
28	FOK	Output	Focus OK comparator output pin
29	LDON	Input	Laser diode ON/OFF switching
30	VCC		Positive power supply pin



IC1 (FM Unit. . . . UC only)

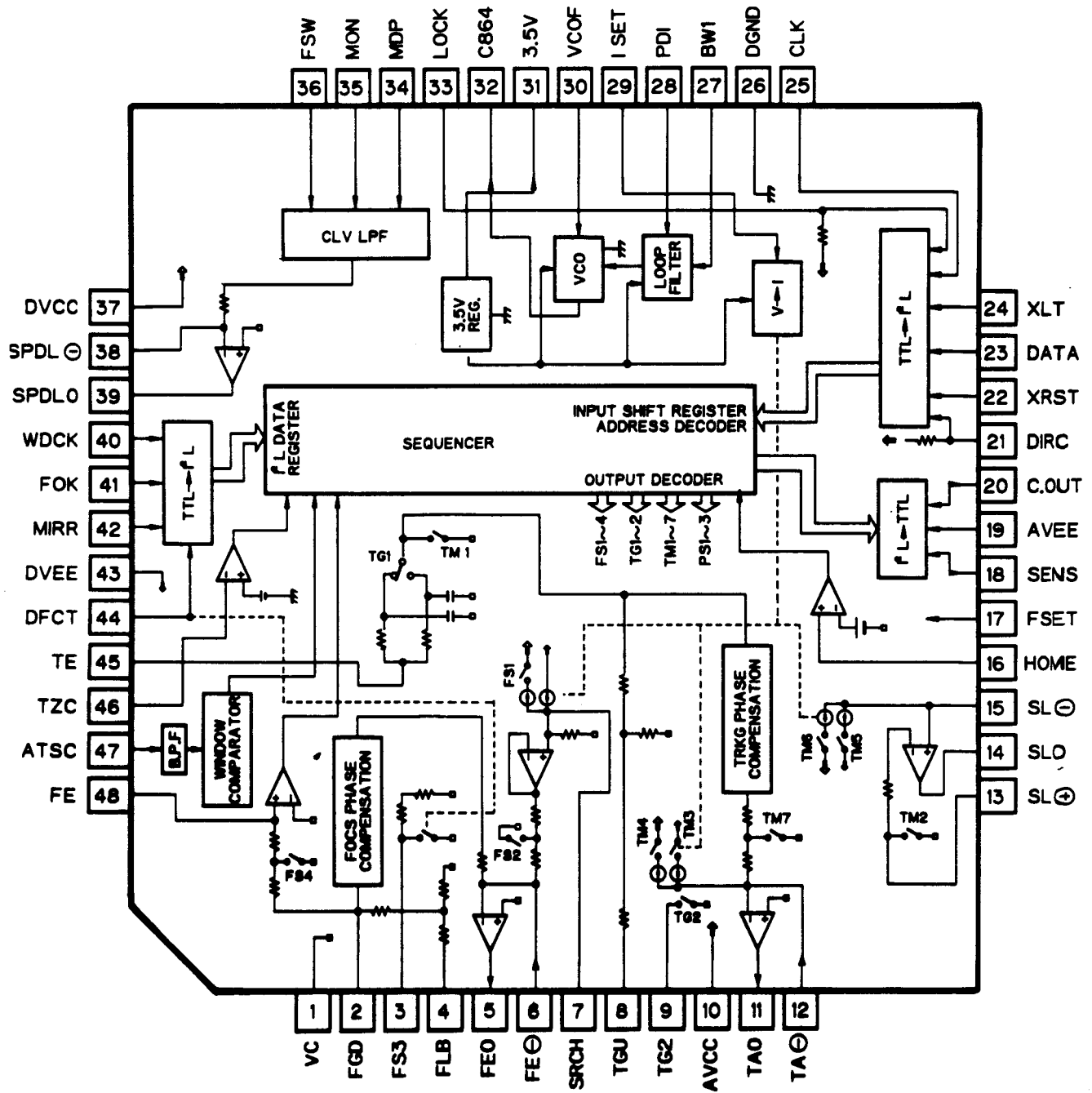
CWW1075
(CWW1076)





Pin Functions (PA3023)

Pin	Pin Name	I/O	Function and Operation
1	GND1	—	Sub GND.
2	AOUT +	Output	Positive actuator drive output.
3	AOUT –	Output	Negative actuator drive output.
4	DGND	—	Power stage GND.
5	NC	—	
6	Vref	—	IC stabilizing reference voltage output.
7	MO	Output	Analog signal output for motor.
8	MIN2	Input	Analog signal input 2 for motor.
9	AIN2	Input	Analog signal input 2 for the actuator.
10	AO	Output	Analog signal output for the actuator.
11	AIN1	Input	Analog signal input 1 for the actuator.
12	BIAS	—	External bias input pin.
13	MIN1	Input	Analog signal input 1 for the motor.
14	GND1	—	Sub GND.
15	GND1	—	Sub GND.
16	BYPASS	—	Ripple filter condensor connection pin for IC stabilizing reference voltage.
17	NC	—	
18	TC	—	Condenser connection pin for obtaining triangle waveform.
19	AGND	—	Small signal GND.
20	CONT	Input	Circuit operation/standby switch input. Active H
21	BRAKE	Input	Motor operation/non-operation switch input. Active L
22	NC	—	
23	NC	—	
24	Vcc	—	ACC power supply.
25	NC	—	
26	MOUT +	Output	Positive motor driver output.
27	MOUT –	Output	Negative motor driver output.
28	GND1	—	Sub GND



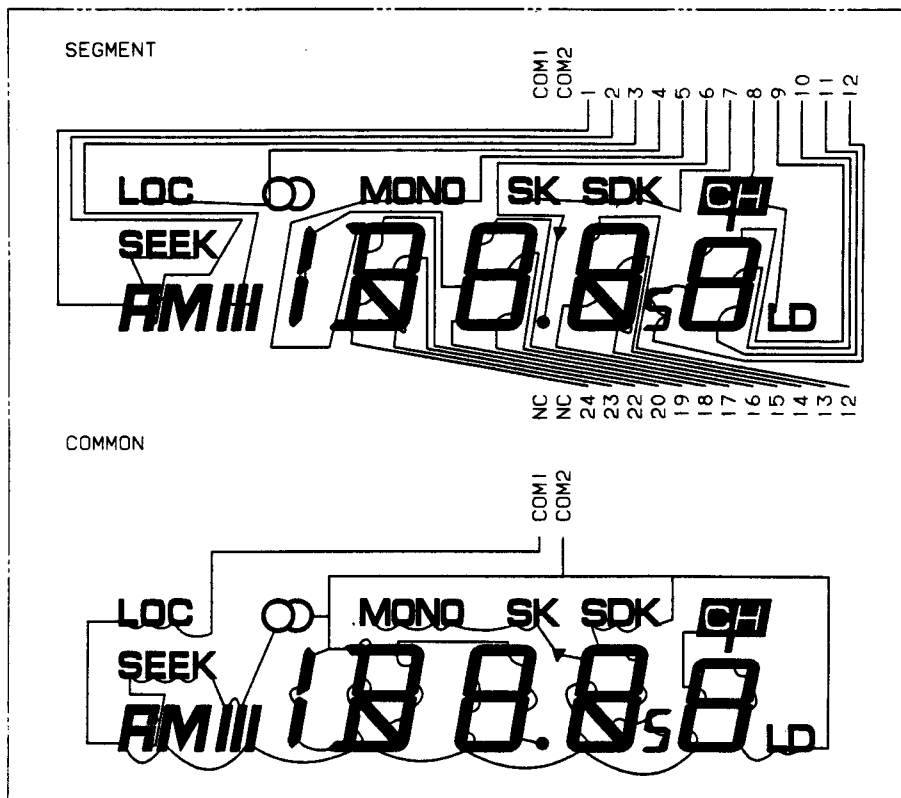
● Pin Functions (CXA1082AQ)

Pin No.	Pin Name	I/O	Function and Operation
1	VC		Servo reference voltage input pin
2	FGD		Connect to pin 3 to switch focus servo OFF when defect occurs
3	FS3		Internal DFCT switch closed when pin 44 is high
4	FLB		Focus servo low region boost external time constant pin
5	FEO	Output	Focus drive output - connect to low-end equalizer
6	FE-	Input	Focus amplifier inverter input pin
7	SRCH		Focus search waveform generation external time constant connector pin
8	TGU	Output	Tracking low-end equalizer connection output pin
9	TG2		Pin 7 discharge switch for starting focus search from lens center
10	AVCC		+ 5V connection
11	TAO	Output	Tracking drive output
12	TA-	Input	Tracking amplifier inverter input pin
13	SL+	Input	Sled amplifier non-inverting input pin
14	SLO	Output	Sled drive output
15	SL-	Input	Sled amplifier inverter input pin
16	HOME	Input	Sled home position detector switch input pin
17	FSET		Focus/tracking phase compensation peak and CLV low-pass filter f_0 setting pin
18	SENS	Output	Output of FZC, AS, TZC, SSTOP, and $\overline{\text{BUSY}}$ depending on command from CPU
19	AVEE		AGND connection
20	COUT	Output	Track counter signal output
21	DIRC		Not used
22	XRST	Input	Reset input pin - reset when "L"
23	DATA	Input	Serial data input from CPU
24	XLT	Input	Latch input from CPU
25	CLK	Input	Serial data transfer clock input from CPU
26	DGND		DGND connection
27	BW1		Loop filter external time constant pin
28	PDI	Input	Input of CXD1135 phase comparator output PDO
29	ISET		Current which determines focus search, track jump, and sled kick height
30	VCOF		VCO free-running frequency more or less inversely
31	3.5V	Output	Proportional to resistance value between pins 30 and 31
32	C864	Output	8.64MHz VCO output pin
33	LOCK		Not used
34	MDP		Connect to MDP pin of CXD1135
35	MON		Connect to MON pin of CXD1135
36	FSW		CLV servo error signal low-pass filter external time constant pin
37	DVCC		+ 5V connection
38	SPDL-	Input	Spindle drive amplifier inverter input pin

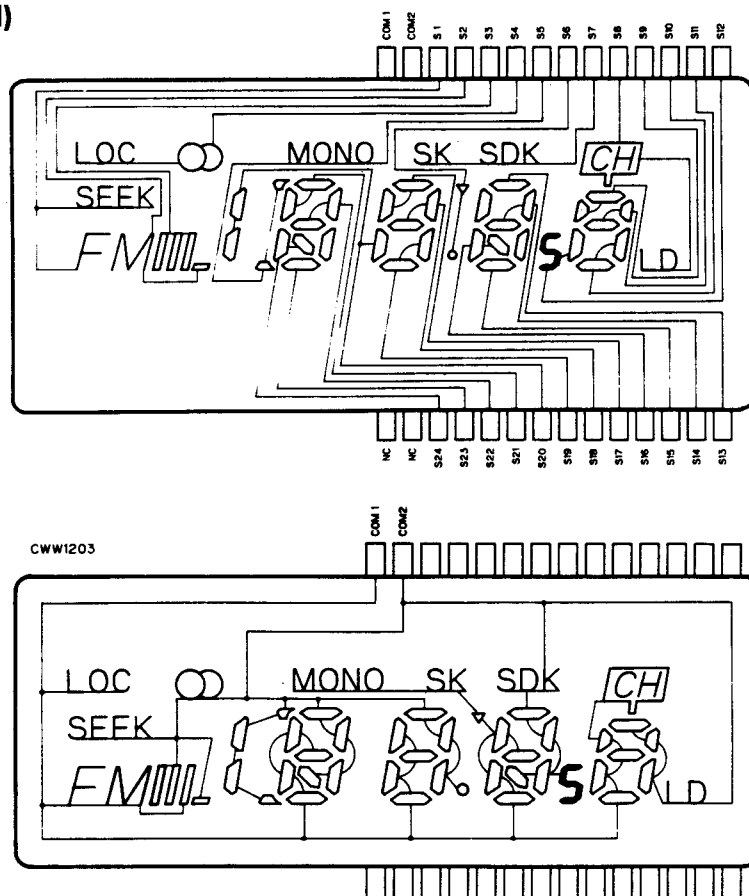
● Circuit Diagram Symbols

Symbol	Function	Symbol	Function
A	1/4 division detector output used in detection of RF and focus signal	FEO2	Focus 2 (IC655 pin no.7)
ACC	14.4V	FLOAT	Carriage mechanism play position detector signal
AGND	Analog ground	HOME	Home position detector signal (pick-up at home position when "L")
ASY	Asymmetry	IN1	Motor control signal 1
ATSC	Anti-shock (carriage motor control during playback)	IN2	Motor control signal 2
B	1/4 division detector output used in detection of RF and focus signal	IN3	Motor control signal 3
BATT	14.4V (Constant power supply)	ISETY	ISER resistance pin (IC601 pin no.31)
BDATA	Bus data signal	LAMP	Photo-interrupter drive signal
BRST	Bus reset signal	LD	Laser diode
BRXEN	Bus line busy signal	LOAD	Magazine loading power supply ON/OFF signal
BSCK	Bus synchronizing shift clock	MON	Motor ON (spindle forward or reverse when "H")
BSRQ	Bus service request line	MAG	Magazine detector signal
BYPASS1	Bypass 1 (non-drive enabled by connecting to ground during PWM IC651 operation)	MD	Monitor diode
BYPASS2	Bypass 2 (non-drive enabled by connecting to ground during PWM IC652 operation)	MUTG	Mute signal (muting ON when "L")
C	1/4 division detector output used in detection of RF and focus signal	POWER	Power supply control signal
CBRAKE	PWM driver brake control signal (brake on when "L")	REG5	+ 5V
CLAMP +	Clamp motor drive signals	SLO	Carriage output signal (IC601 pin no.14)
CLAMP -		SM +	Spindle motor drive signals (PWM OUT)
CM +	Carriage motor drive signal (PWM OUT)	SM -	
CM -		SPC	Spindle motor rpm detector signal (low speed when "L", IC656 pin nos.1 & 7)
CONT	PWM driver ON/OFF signal (ON when "H")	SPCO	Spindle brake (spindle brake when "H", IC751 pin no. 59)
D	1/4 division detector output used in detection of RF and focus signal	SPDLO	Spindle motor error signal (IC601 pin no.39)
DEEM	Emphasis selector switch (emphasis ON when "H")	SPTAO	Tracking side path signal output
DFCT	DEFECT signal ("H" when defect)	SMIN	Spindle motor drive PWM input signal
DGND	Digital ground	STBY	Standby position detector signal
DISC	Disc presence detector signal	TA +	Tracking actuator drive signals (PWM OUT)
E	Tracking signal start detector	TA -	
EFM	8-14 modulation	TAIN	Tracking actuator drive PWM input signal
EJ	Eject key	TEND	Mechanism clamped switching line
EJP	Magazine position detector signal (eject position when "L")	TGU	Tracking side path input
ELV +	Elevation motor drive signals	TIN	Tray position detector signal (tray housed when "L")
ELV -		TIG	Switch ground
END	Carriage mechanism END position detector signal	TOG	Switch ground
F	Tracking signal end detector	TOUT	Tray position detector signal (tray ejected when "H")
FA +	Focus actuator drive signal (PWM OUT)	TRAY +	Tray motor drive signals
FA -		TRAY -	
FAIN	Focus drive PWM input signal	TSEL	Magazine position detector signal
FEO	Focus signal output (IC601, CXA1082AQ pin no.5)	TZC	T.E zero-cross signal
		VC	Signal reference voltage (2.5V)
		VREF	Signal reference voltage buffer output (2.5V)

• LCD : CWW1161 (UC)



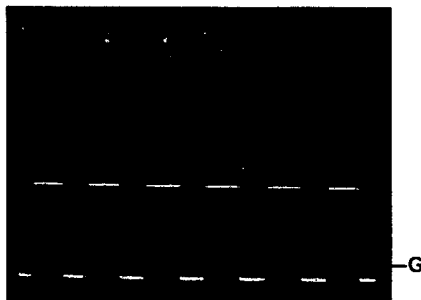
• LCD : CWW1203 (WG, EW)
CWW1162 (EI)



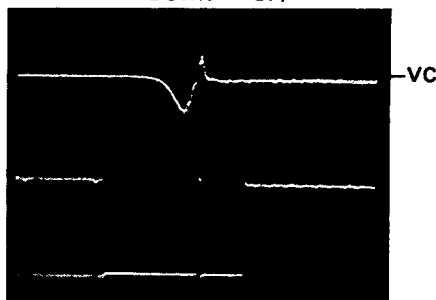
Note: 1. The encircled numbers denote measuring points in the circuit diagram.
 2. Reference voltage.
 G: GND VC: Pin 14 of CXA1081M (2.5V)

● Wave Forms

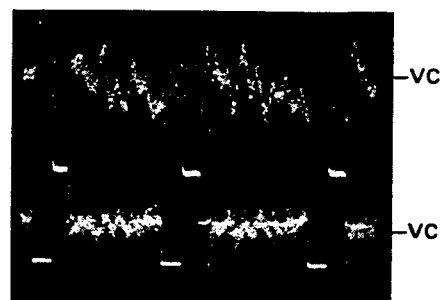
① CH1: RFO 0.4V/div. 0.4ms/div.
 ② CH2: MIRR 2V/div.
 Test mode: Tracking open



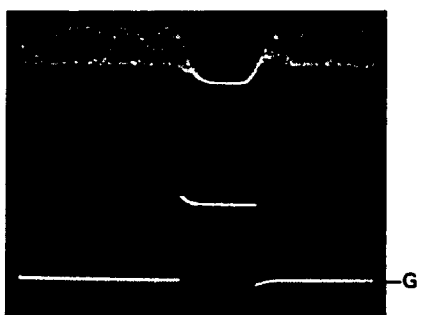
⑦ CH1: FEY 1V/div. 4ms/div.
 ⑧ CH2: SENS 2V/div.
 Normal mode: Focus close (The lens moves DOWN → UP)



⑨ CH1: TEY 0.4V/div. 4ms/div.
 ⑪ CH2: TAO 0.4V/div.
 Normal mode: Track search (80 track jump)



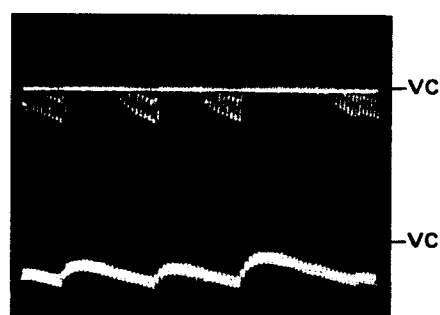
① CH1: RFO 1V/div. 0.4ms/div.
 ③ CH2: DEFECT 2V/div.
 Normal mode: The defect part passes 800μm.



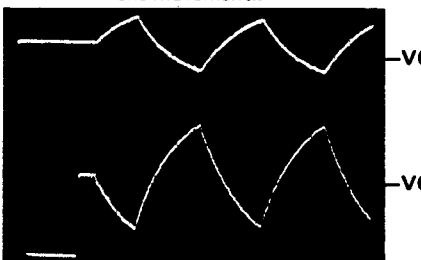
⑨ CH1: TEY 0.4V/div. 0.4ms/div.
 ⑩ CH2: TZC 0.4V/div.
 Test mode: Tracking open



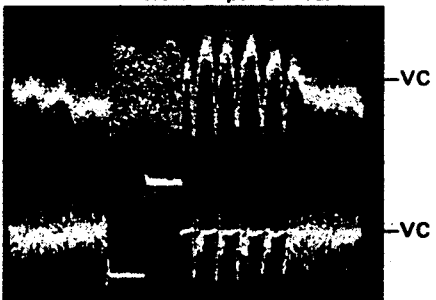
⑫ CH1: SLO 0.4V/div. 2S/div.
 ⑬ CH2: ATSC 0.02V/div.
 Normal mode: PLAY



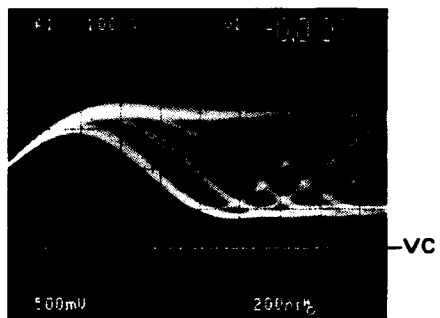
④ CH1: FEO 0.2V/div. 0.4S/div.
 ⑤ CH2: Pin 7 of CXA1082AQ 0.04V/div.
 Test mode: Connect the FOK2 to GND. Focus search is performed. (CH2 is the same phase as the lens movement.)



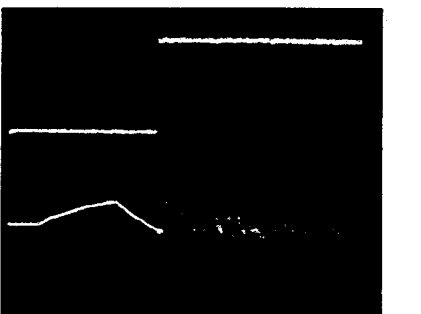
⑨ CH1: TEY 0.4V/div. 2ms/div.
 ⑪ CH2: TAO 0.4V/div.
 Normal mode: Brake wave form when track search is performed.



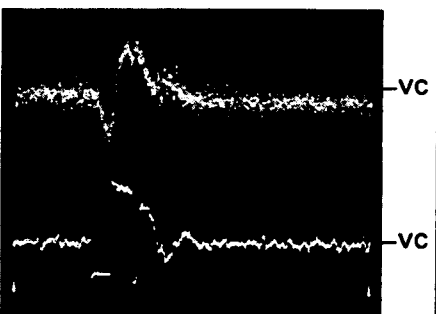
① RFO 0.5V/div. 200ns/div.
 Normal mode: PLAY



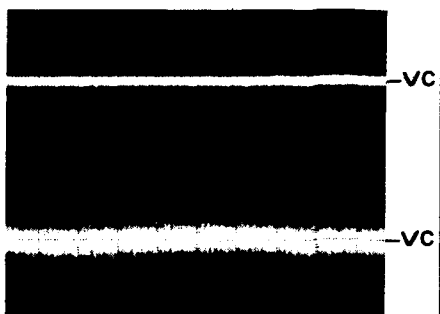
⑥ CH1: FOK2 2V/div. 0.2S/div.
 ④ CH2: FEO 0.2V/div.
 Normal mode: Focus close

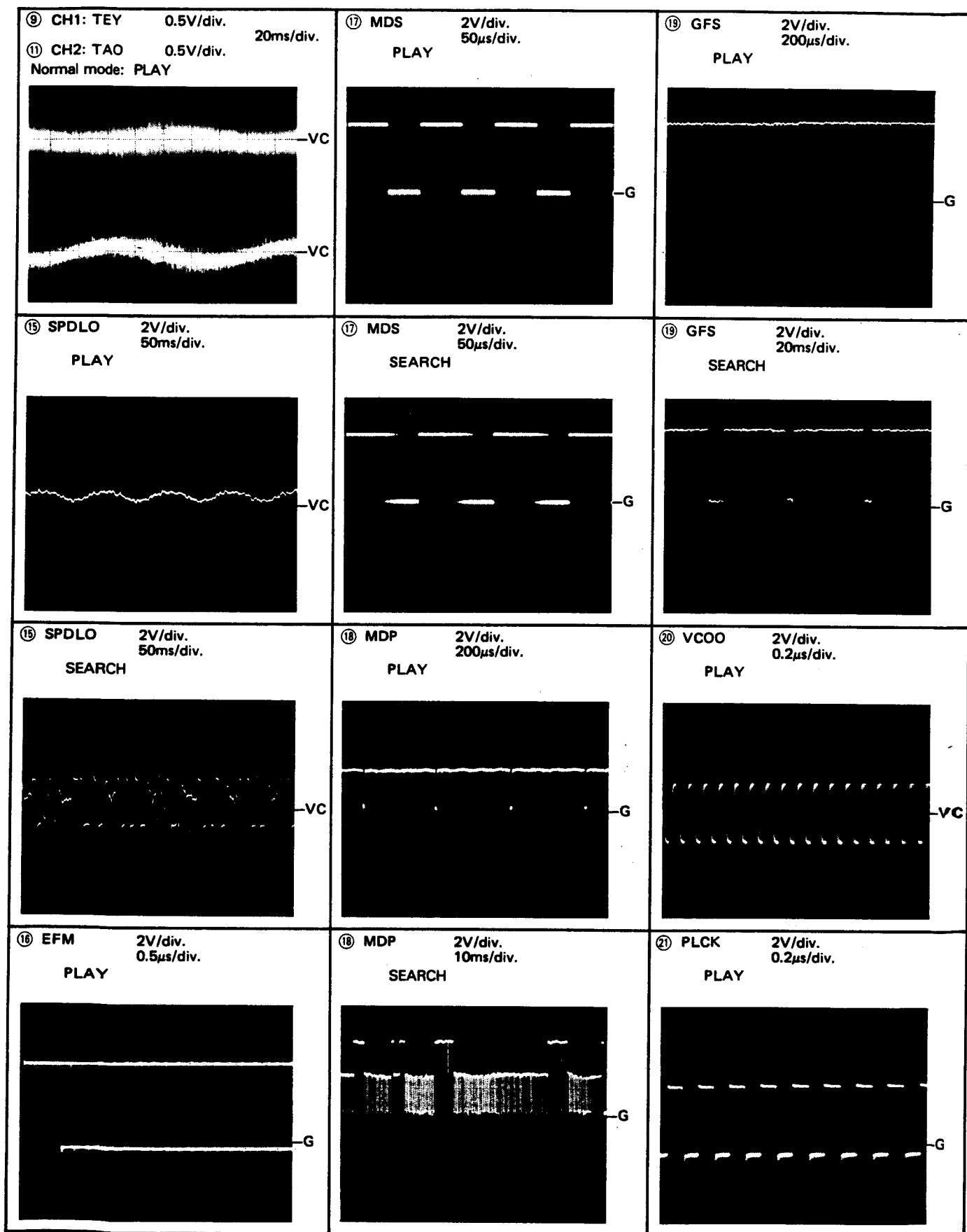


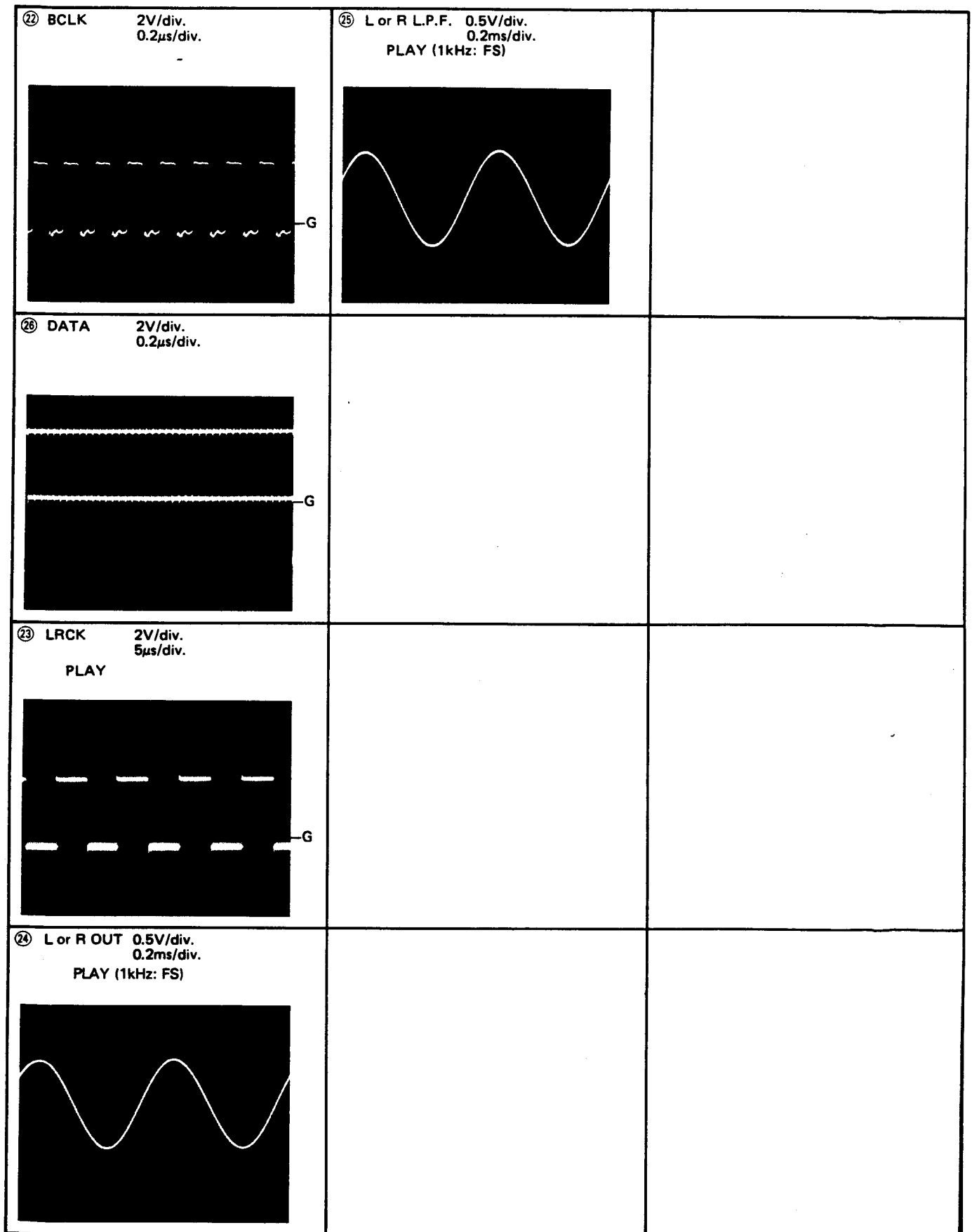
⑨ CH1: TEY 0.4V/div. 0.4ms/div.
 ⑪ CH2: TAO 0.4V/div.
 Test mode: Single jump



⑦ CH1: FEY 0.5V/div. 20ms/div.
 ⑭ CH2: FEO2 0.5V/div.
 Normal mode: PLAY







19. EXPLODED VIEW

NOTE:

- For your Parts Stock Control, the fast moving items are indicated with the marks ★ ★ and ★.
- ★ ★: GENERALLY MOVES FASTER THAN ★.
- This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts whose parts numbers are omitted are subject to being not supplied.
- Parts marked by "◎" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

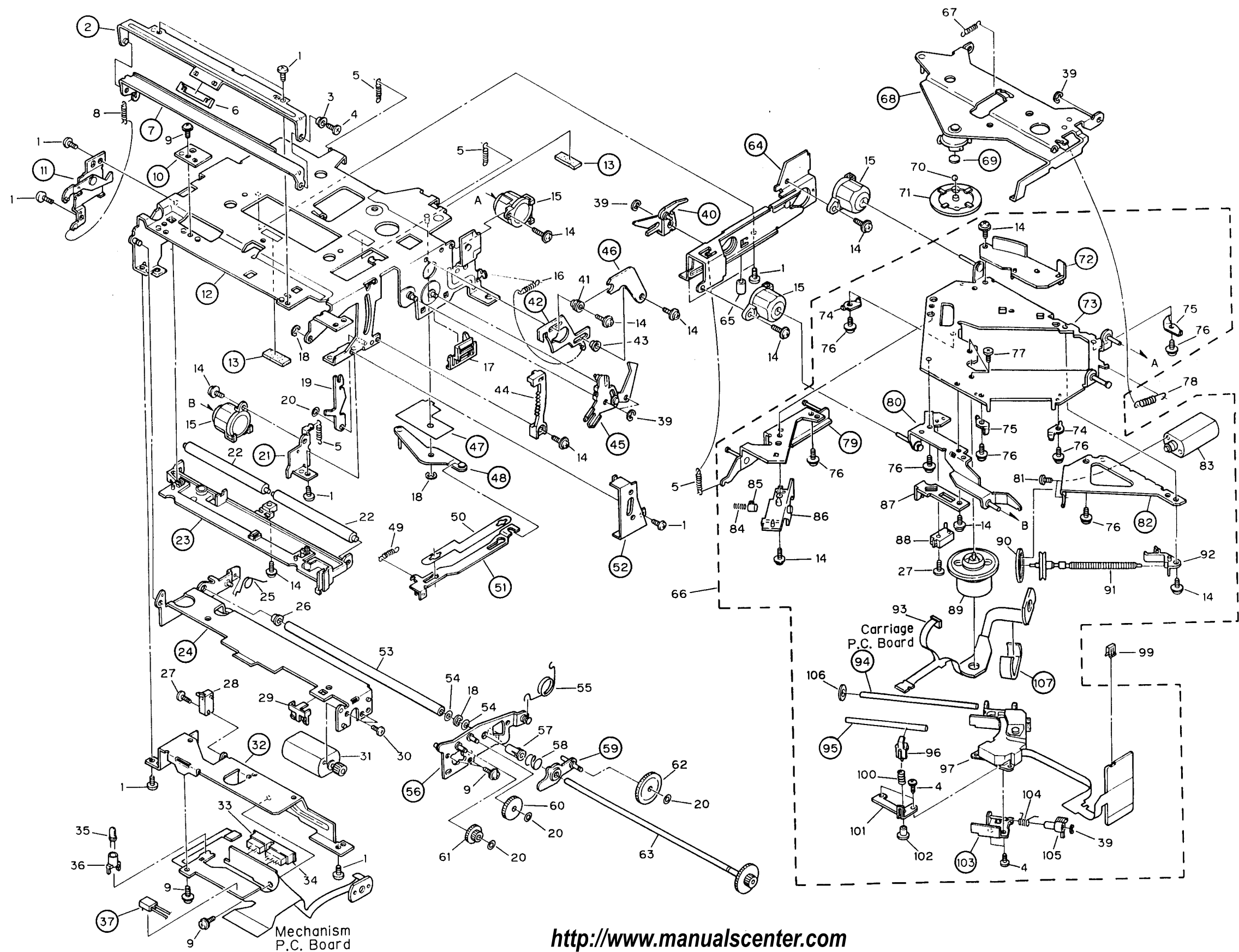
Parts List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1	BMZ30P050FMC	Screw		31	CXA2504	Grille Unit(UC)
	2		Case			CXA2506	Grille Unit(WG)
	3		Insulator			CXA2505	Grille Unit(EW,EI)
	4	CBA1094	Transportation Screw		32	PVZ14P045FZK	Screw
	5	CRP1031	Caution Card		33		Holder
					34		Cover
	6	CNM1877	Seal		35		Lens
	7	CDE1774	Cord		36		Lens
	8	BPZ20P050FMC	Screw		37	CAC1622	Button
◎	9	CWX1117	Display Unit(UC)	★	38		Cushion
◎		CWX1124	Display Unit(WG)		39		Cushion
					40	CAC1608	Button
◎		CWX1121	Display Unit(EW)	★	41	CAC1609	Button
◎		CWX1125	Display Unit(EI)	★	42	CAC1613	Button
	10		Cushion	★	43	CAC1610	Button
	11	CNP1656	P.C.Board	★	44	CAC1611	Button
	12	CNP1655	P.C.Board	★	45	CAC1612	Button
	13	CSS1023	Xtal Resonator		46	BMZ30P050FMC	Screw
	14	CNM1855	Insulator		47		Case
★★	15	CEL1038	Lamp(UC, WG, EW)		48	CEG1037	Cover
★★		CEL1037	Lamp(EI)		49	CDE1894	Cord(UC)
	16		Film			CDE1895	Cord(WG, EW, EI)
	17		Shield Plate		50	CWR1018	Power Supply Unit(UC)
	18		Holder	◎		CWR1017	Power Supply Unit
	19		Lens	◎			(WG, EW, EI)
	20	CWW1161	LCD(UC)		51		Bracket
		CWW1203	LCD(WG, EW)		52		Insulator
		CWW1162	LCD(EI)				
	21		Case		53	AN7805R	IC
	22		Cushion	★★	54	AN6540	IC
★	23	CAC1621	Button	★★	55	CKS-462	Plug
★	24	CAC1620	Button		56	BMZ30P060FMC	Screw
★	25	CAC1614	Button		57		Plug
	26	CAC1615	Button				
★	27	CAC1616	Button				
★	28	CAC1617	Button				
★	29	CAC1618	Button				
★	30	CAC1619	Button				

• Part List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
A	1	BMZ26P030FMC	Screw		46		Holder
	2		Bracket		47		Spacer
	3	CLA1311	Collar		48		Arm Unit
	4	CBA1062	Screw		49	CBH1134	Spring
	5	CBH1182	Spring		50	CNM1792	Spacer
	6	CNV1641	Holder		51		Lever Unit
	7		Arm		52		Bracket
	8	CBH1137	Spring		53	CNV1634	Roller
	9	CBA1076	Screw		54	CBF1002	Washer
	10		P.C.Board		55	CBH1133	Spring
B	11		Bracket Unit		56		Bracket Unit
	12		Chassis Unit		57	CNV1632	Bearing
	13		Cushion		58	CBH1181	Spring
	14	CBA1075	Screw		59		Arm Unit
	15	CXA2148	Damper Unit		60	CNV1628	Gear
	16	CBH1139	Spring		61	CNV1627	Gear
	17	CNV1633	Holder		62	CNV1629	Gear
	18	YE20FUC	Washer		63	CXA2456	Gear Unit
	19	CNV1631	Cam		64		Bracket Unit
	20	CBF-166	Washer		65	CNY-265	Cushion
C	21		Bracket	◎	66	CXA1910	Carriage Unit
	22	CNV1636	Roller		67	CBH1136	Spring
	23		Guide		68		Arm Unit
	24		Arm Unit		69		Spacer
	25	CBH1135	Spring		70	CNR1079	Ball
	26	CNV1884	Bearing		71	CNV1643	Clamper
	27	CBA1070	Screw		72		Guide
	28	CSN1004	Switch(Disc Set)		73		Chassis Unit
	29	CNV1644	Holder		74	CNC1738	Holder
	30	HBA-175	Screw		75	CNC1739	Holder
D	31	CXM2129	Motor Unit>Loading)		76	PMS20P030FMC	Screw
	32		Bracket		77	HBA-163	Screw
	33	CKS-719	Connector		78	CBH1138	Spring
	34	CKS-721	Connector		79		Bracket Unit
	35	SLH-34VC3F	LED		80		Holder Unit
	36	CNV1639	Holder		81	CBA-098	Screw
	37		Connector		82		Bracket
	38	CNP1711	P.C.Board	★★	83	CXA2133	Motor Unit(Carriage)
	39	YE15FUC	Washer		84	CBH1104	Spring
	40		Arm Unit		85	CNV1844	Spacer
	41	CLA1472	Collar		86	CNV1780	Holder
	42		Lever		87	CNV1674	Holder
	43	CLA1309	Collar	★★	88	CSN-094	Switch(Home)
	44	CNV1630	Gear	★★	89	CXM1033	Motor Unit(Spindle)
	45		Arm Unit	★★	90	CNT1020	Belt

20. CD MECHANISM EXPLODED VIEW



<http://www.manualscenter.com>

Fig. 53

21. ELECTRICAL PARTS LIST

NOTE:

- For your parts Stock Control, the fast moving items are indicated with the marks ** and *.
- ** : GENERALLY MOVES FASTER THAN *.
- This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/8S□□□J, RS1/10S□□□J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

Unit Number :

Unit Name : AM Unit(UC, EV, EI)

MISCELLANEOUS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
**	IC	201			PA4010
**	Q	201			2SK435
**	Q	202			2SC2458
**	Q	203 204 205			DTC124ES
*	D	201 202			1S2473VH
*	D	203			SVC203-AB
*	D	204 205			1SS133
	L	201		Ferri-Inductor 1mH	CTF1028
	L	202		Ferri-Inductor 22μH	LAU220K
	L	203		Ferri-Inductor 47μH	LAU470K
	L	204		Ferri-Inductor 4.7μH	LAU4R7K
	T	201		Coil	CTB1020
	T	202		Coil	CTB1004
	T	203		Coil	CTB1022 (CTB1021)
	T	204		Coil	CTE1013 (CTE1008)
	T	205		Coil	CTE1014 (CTE1007)
	T	206		Coil	CTE1015 (CTE1008)
X		201		Xtal	CSS1014
CF		201		Filter	CTF1027 (CTF1041)
CF		202		Filter	CTF-100

RESISTORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
R		201			RS1/10S220J
R		202			RS1/10S681J
R		203 206			RS1/10S222J
R		204			RS1/10S473J
R		205			RS1/10S470J
R		207			RS1/10S822J
R		208 211			RS1/10S103J
R		209			RD1/4PS470JL
R		210			RS1/10S882J
R		212			RS1/8S223J
R		213			RD1/4PS222JL

CAPACITORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
C		201 209 223 228			CKSQYB103K50
C		202 212			CKSQYB332K50
C		203 215 218 219 228			CKSQYF473Z50
C		204 208 210			CKSQYB223K50
C		206 207			CCSQCH820J50
C		211			CEA010M50LL
C		213			CCSQCH470J50
C		218			CEA2R2M35NPLI
C		220			CCSQCH430J50
C		221			CCSQCH100050

<u>Mark</u>	<u>No.</u>	<u>Part No.</u>	<u>Description</u>
	91	CXA2375	Screw Unit
	92	CNV1781	Holder
	93	CNP1709	P.C.Board
	94		Shaft
	95		Shaft
	96	CNV1512	Holder
	97	CGY1007	PU Unit
	98	
	99	CBL1010	Short Pin
	100	CBH1105	Spring

<u>Mark</u>	<u>No.</u>	<u>Part No.</u>	<u>Description</u>
	101	CNC1736	Holder
	102	CLA1319	Screw
	103		Holder Unit
	104	CBH1106	Spring
	105	CNV1513	Rack
	106	CNV1863	Cushion
	107		Cover

Mark	Circuit Symbol & No.	Part Name	Part No.	Mark	Circuit Symbol & No.	Part Name	Part No.
C 222			CSZA010K25	R 103			RS1/10S183J
C 224			CEA470M18LL	R 151			RS1/10S222J
C 225			CKSQYB333K25	R 153			RS1/8S472J
C 227			CEA4R7M35LL	R 156(UC) 157(UC)			RS1/10S202J
C 229			CEA470M18LL	R 156(EW, EI) 157(EW, EI)			RS1/10S332J
C 230			CEA220M6R3LL	R 158			RS1/10S334J
C 232			CCSQCH220J50				
Unit Number :				CAPACITORS			
Unit Name : FM Unit(UC, EW, EI)				Mark	Circuit Symbol & No.	Part Name	Part No.
MISCELLANEOUS				C 1			CKSQYB102K50
Mark	Circuit Symbol & No.	Part Name	Part No.	C 2 101 102			CKSQYB103K25
** IC 1(UC)			CWV1075 (CWV1076)	C 4 51 52 53 54 59			CKSQVF473Z50
** IC 51			LA1140B	C 55 62			CCSQSL330J50
** IC 101			LA2110	C 56 63			CEAR47M50LS2
** IC 151			LA3430P	C 57			CKSQVF104Z25
** Q 1	Chip Transistor	2SA1182 (2SA1179)		C 58 156			CEA010M50LS2
** Q 2	Chip Transistor	DTC124EK		C 60			CCSQSL101J50
** Q 51	Chip Transistor	2SC2712 (2SD601)		C 61			CEA4R7M16NPLL
** Q 71	Chip Transistor	2SJ106		C 70			CCSQCH200J50
* D 151		1S2473VH		C 103 105 161			CEA470M16LS
L 1 51	Inductor 15μH	LAU150K		C 104			CKSQYB182K50
T 51	Coil	CTC1029		C 151			CKSQVF473Z50
X 151	Ceramic Oscillator	CSS1028 (CSS1022)		C 152			CKSQYB332K50
CR 101		CWV-107		C 153			CKSQYB223K25
CF 51 52	Ceramic Filter	CTF-182		C 154			CKSQYB153K25
** VR 1(UC)	Semi-fixed 33kΩ(B)	CCP-325		C 155			CEA3R3M50LS
** VR 1(EW, EI)	Semi-fixed 10kΩ(B)	CCP-322		C 157			CSZAR22M35
** VR 101	Semi-fixed 10kΩ(B)	CCP-322		C 158(EW, EI)			CCSQSL681J50
** VR 151	Semi-fixed 150kΩ(B)	CCP-329		C 159(UC) 160(UC)			CKSYB393K25
** VR 152	Semi-fixed 15kΩ(B)	CCP-323		C 159(EW, EI) 160(EW, EI)			CKSYB183K25
	Front End Unit	CWB1032		Unit Number :			
RESISTOS				Unit Name : Tuner Unit(SDK/WG)			
Mark	Circuit Symbol & No.	Part Name	Part No.	MISCELLANEOUS			
R 2 7 152			RS1/10S223J	Mark	Circuit Symbol & No.	Part Name	Part No.
R 3(UC)			RS1/10S473J	** IC 51			LA1140B
R 4 58 104			RS1/10S682J	** IC 101			KHA115
R 5(UC)			RS1/10S0R0J	** IC 151			MX3S400
R 5(EW, EI)			RS1/10S471J	** IC 201			PA4010
R 8(UC)			RS1/8S153J	** IC 801			KHA142
R 8(EW, EI)			RS1/8S981J	** Q 1	Chip Transistor	2SA1182 (2SA1179)	
R 21(EW, EI) 22(EW, EI)			RS1/8S0R0J	** Q 2	Chip Transistor	DTC124EK	
R 23			RS1/10S0R0J	** Q 51	Chip Transistor	2SC2712 (2SD601)	
R 51			RS1/8S0R0J	** Q 71		2SJ105	
R 52			RS1/10S331J	** Q 201		2SK435	
R 53 57			RS1/10S473J	** Q 202		2SC2458	
R 54			RS1/10S104J	** Q 203 204 205		DTC124ES	
R 55 60			RS1/10S153J	* D 151	Chip Diode	MA151WA	
R 56			RS1/8S123J	* D 201 202		1S2473VH	
R 59			RD1/4PS183JL	* D 203		SVC203-AB	
R 61 62			RS1/10S472J	* D 204 205		1SS133	
R 71			RS1/10S474J	L 1 51	Inductor 15μH	LAU150K	
R 101			RS1/10S332J	L 201	Ferri-Inductor 1000μH	CTF1028	
R 102			RS1/10S392J				

Mark	Circuit Symbol & No.	Part Name	Part No.
L 202		Ferri-Inductor 22 μ H	LAU220K
L 203		Ferri-Inductor 47 μ H	LAU470K
L 204		Ferri-Inductor 4.7 μ H	LAU4R7K
T 51		Coil	CTC1029
T 201		Coil	CTB1020
T 202		Coil	CTB1004
T 203		Coil	CTB1022 (CTB1021)
T 204		Coil	CTE1013 (CTE1008)
T 205		Coil	CTE1014 (CTE1007)
T 206		Coil	CTE1015 (CTE1008)
X 201		Xtal	CSS1014
X 801		Ceramic Oscillator	CSS1019
G 501			DSP-201M-500B
CF 51 52		Ceramic Filter	CTF-182
CF 201		Filter	CTF1027 (CTF1041)
CF 202		Filter	CTF-100
** VR 1		Semi-fixed 10k Ω (B)	CCP-322
** VR 101 152		Semi-fixed 15k Ω (B)	CCP-323
** VR 151		Semi-fixed 150k Ω (B)	CCP-329
		Front End Unit	CVB1032

RESISTORS

Mark	Circuit Symbol & No.	Part Name	Part No.
R 2			RS1/8S223J
R 4			RS1/8S682J
R 5			RS1/8S471J
R 6			RS1/10S681J
R 7			RS1/10S223J
R 23 51			RS1/10S0R0J
R 52			RS1/10S331J
R 53 57 802			RS1/10S473J
R 54			RS1/10S104J
R 55 60			RS1/10S153J
R 56			RS1/10S123J
R 58			RS1/10S682J
R 59			RD1/4PS183JL
R 61 62			RS1/10S472J
R 71			RS1/10S474J
R 101			RS1/10S332J
R 102			RS1/8S183J
R 103			RS1/8S562J
R 201			RS1/10S220J
R 202			RS1/10S681J
R 203 206			RS1/10S222J
R 204			RS1/10S473J
R 205			RS1/10S470J
R 207			RS1/10S822J
R 208 211			RS1/10S103J
R 209			RD1/4PS470JL
R 210			RS1/10S682J
R 212			RS1/8S223J
R 213			RD1/4PS222JL
R 801			RS1/10S222J

CAPACITORS

Mark	Circuit Symbol & No.	Part Name	Part No.
C 1			CKSQYB102K50
C 2 802			CKSQYB103K50
C 4 54			CKSYF473Z50
C 51 52 53 59			CKSQYF473Z50
C 55 62			CCSQSL330J50
C 56 63			CEAR47M50LS2
C 57			CKSQYF104Z25
C 58			CEA010M50LS2
C 60			CCSQSL101J50
C 61			CEA4R7M16NPLL
C 70			CCSQCH200J50
C 101 105 161			CEA470M16LS
C 152			CKSQYB332K50
C 154			CKSQYB153K25
C 159 160			CKSYB123K50
C 201 209 223 228			CKSQYB103K50
C 202 212			CKSQYB332K50
C 203 215 216 219 226			CKSQYF473Z50
C 204 208 210			CKSQYB223K50
C 206 207			CCSQCH820J50
C 211			CEA010M50LS2
C 213			CCSQCH470J50
C 218			CEA2R2M35NPLL
C 220			CCSQCH430J50
C 221			CCSQCH100D50
C 222			CSZA010K25
C 224			CEA470M16LS
C 225			CKSQYB333K25
C 227			CEA4R7M35LS
C 229			CEA470M16LS
C 230			CEA220M6R3LL
C 232			CCSQCH220J50
C 801			CQMA683J50
C 803			CCH1015
C 804			CEA4R7M35LS
C 805			CEA220M18LS
C 806			CSZAR33M35
Unit Number :			
Unit Name : CD Unit			
MISCELLANEOUS			
Mark	Circuit Symbol & No.	Part Name	Part No.
** IC 351			CXA1081M
** IC 451			M5218FP
** IC 452			KHA215
** IC 501			LC7218M
** IC 601			CXA1082A
** IC 651 652			PA3023
** IC 655 657			M5218FP
** IC 856			M5233FP
** IC 701			CXD1135Q
** IC 702			CKK5816M
** IC 703			μ PD6355G
** IC 704			KHA220
** IC 751			PD4136A
** IC 752			M51955AFP
** IC 753 881			M51945AFP

220 μ F/10V

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
**	IC	754			M54546AL
**	IC	851			M5228FP
**	IC	882			PDG011
**	Q	351			2S8822F
**	Q	451(SDK/WG)	452(SDK/WG)	Chip Transistor	DTC343TK
**	Q	453(SDK/WG)		Chip Transistor	UN5210
**	Q	454(SDK/WG)	455(SDK/WG)	Chip Transistor	2SD1819
**	Q	502		Chip Transistor	2SC3295
**	Q	503 504 505 506		Chip Transistor	2SC4116
**	Q	507(SDK/WG, EV, EI)		Chip Transistor	DTC124EU
**	Q	508 509		Chip Transistor	DTA124EU
**	Q	510 511		Chip Transistor	DTC114TU
**	Q	512 513		Chip Transistor	RN2427
**	Q	514 758			2SD1228M
**	Q	515(SDK/WG)			2SD1228M
**	Q	601 651 652 653 701 705 756 760		Chip Transistor	UN2211
**	Q	702 706 759			UN2111
**	Q	703 704		Chip Transistor	2SD1048
**	Q	757			2SD1228M
**	Q	851 852 855 856		Chip Transistor	DTC343TK
**	Q	853		Chip Transistor	2SD1819
**	Q	854 884		Chip Transistor	DTA114EU
**	Q	882 883		Chip Transistor	DTC114EU
**	Q	885		Chip Transistor	UN5210
*	D	451(SDK/WG)		Chip Diode	MA141WA
*	D	452 453 505			MA3056
*	D	501 502 503		Chip Diode	MA141WK
*	D	504			MA143
*	D	506 851 852		Chip Diode	MA141WA
*	D	651			ERA15-02
*	D	652 653			ERA82-004Y
*	D	654 655 656 657 658 659			ERA82-004VH
*	D	661 662			HZS2ALL
*	D	701		Chip Diode	MA151WA
*	D	702		Chip Diode	MA151K
*	D	753			MA3200
*	D	754			HZ6LB1
*	D	755			MA3062
L	501			Ferri-Inductor 47 μ H	LAU470K
L	651			Chok Coil 220 μ H	CTH1035
TH	351			Thermistor	CCX1001
TH	751			Thermistor	CCX-021
**	VR	351	Semi-fixed	47k Ω (B), 10k Ω (B) \times 2	CCP1005
**	VR	352	Semi-fixed	47k Ω (B) \times 4	CCP1006
**	VR	604	Semi-fixed	2.2k Ω (B)	HCP-267
**	VR	651	Semi-fixed	47k Ω (B)	HCP-275
G	501(EV, EI)				DSP-201M-S008
IB	851(UC)				CW1097
IB	851(SDK/WG, EV, EI)				CW1096
IB	852				CW1096
X	501		Xtal		CSS1030
X	701		Xtal		CSS1027
X	751		Ceramic Oscillator		CSS-042
			Buzzer		CPV1005

RESISTORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
R	351				RS1/2P220JL
R	353 381 536 540 708 709 851 852 881				RS1/10S102J
R	354 363 378				RS1/10S223J
R	355 610 625 785				RS1/10S113J
R	356 357 358 359 669				RS1/10S563J
R	360 361				RS1/10S124J
R	362 763				RS1/10S564J
R	364 365 618 671				RS1/10S105J
R	366 377 666				RS1/10S562J
R	367				RS1/10S104J
R	379 515 525 710 711 722 723				RS1/10S472J
R	380 617 628 682				RS1/10S203J
R	382				RS1/10S363J
R	383				RS1/10S823J
R	384 630				RS1/10S273J
R	451 452				RS1/10S562J
R	453 454				RS1/10S433J
R	455 456 505 521 527 529 537 673 865				RS1/10S473J
R	457(SDK/WG)				RS1/10S103J
R	458(SDK/WG) 459(SDK/WG)				RS1/10S104J
R	460 461 462 853 854 859 860				RS1/10S223J
R	463 464 501 502 503 504 523 530 532				RS1/10S222J
R	506 533 609 614 619 627 773 774				RS1/10S104J
R	511(SDK/WG, EV, EI)				RS1/10S561J
R	512(SDK/WG, EV, EI)				RS1/10S332J
R	513 517 526 528 531 775				RS1/10S103J
R	514				RS1/10S122J
R	516 524 634				RS1/10S474J
R	518 667 684 686 717				RS1/10S472J
R	519 629				RS1/10S153J
R	520				RS1/10S393J
R	522				RS1/10S221J
R	534 535 538 714 724 725 726 727 728				RS1/10S0R0J
R	541(SDK/WG)				RS1/10S221J
R	542(UC)				RS1/10S392J
R	601 602				RS1/10S101J
R	606				RS1/10S224J
R	607 764				RS1/10S683J
R	608				RS1/10S823J
R	611				RS1/10S432J
R	612				RS1/10S623J
R	613				RS1/10S624J
R	616				RS1/10S183J
R	620				RS1/10S332J
R	621				RS1/10S184J
R	622 670 687 696 697 715 718 719 751 752				RS1/10S103J
R	623 765				RS1/10S473J
R	624 882				RS1/10S393J
R	631				RS1/10S272J
R	665 790				RS1/10S821J
R	668 679				RS1/10S392J
R	672				RS1/10S364J
R	674 716				RS1/10S332J
R	676 677 799				RS1/10S201J
R	678				RS1/10S223J

Mark	Circuit Symbol & No.	Part Name	Part No.	Mark	Circuit Symbol & No.	Part Name	Part No.
R 680			RS1P1R5JL	C 605 620 622 628 629			CKSYB473K25
R 681			RS1/10S203J	C 608			CEA220M6R3NPLL
R 683			RS1/10S101J	C 609 756			CKSQYB472K50
R 685 692			RS1/10S105J	C 610 619			CCSQCH221J50
R 690			RS1/10S272J	C 616			CEA220M6R3LS
R 691 703 755 855			RS1/10S103J	C 617			CEA4R7M16LS
R 694 786			RS1/10S822J	C 618			CKSQYB882K50
R 701			RS1/10S100J	C 623			CKSQYB272K50
R 712 713			RS1/10S392J	C 624			CCSQCH391J50
R 721			RS1/10S4R7J	C 651 670			CKSYF224Z25
R 753 754 756 766 767 779			RS1/10S681J	C 652	470 μ F/16V		CCH-114
R 762			RS1/10S391J	C 654 658			CCSQCH221J50
R 770 771			RS1/10S222J	C 656			CEA100M16LS
R 778 788			RS1/10S0R0J	C 661 663			CEA010M50NPLL
R 781			RS1/10S303J	C 665 678 852			CKSYB473K25
R 782			RS1/10S154J	C 671 672			CSZSR68M20
R 856(UC)			RS1/10S0R0J	C 674 705			CASA100M6R3
R 856(SDK/WG, EW, EI)			RS1/10S101J	C 675 676			CEA2R2M35LS
R 857 858 866			RS1/10S102J	C 677 679			CCSQSL681J50
R 867(UC) 868(UC)			RS1/10S0R0J	C 680			CCSQSL681J50
R 883			RS1/10S204J	C 681			CKSYB393K25
R 884 885 886			RS1/10S222J	C 701 710 712 726			CASA6R8M6R3
R 889(UC)			RS1/10S0R0J	C 702			CASA220M6R3
R 890 891 892 893			RS1/10S6R8J	C 706 707			CCSQCH470J50
				C 717 718			CEA470M6R3LS

CAPACITORS

Mark	Circuit Symbol & No.	Part Name	Part No.	Mark	Circuit Symbol & No.	Part Name	Part No.
C 351 719 720			CEA101M6R3LS	C 722 723			CEA330M6R3LS
C 352 611 625 626 662 664 713 724 727 751			CKSQYB103K50	C 752			CCSQCH300J50
C 353 613 666			CKSYB333K25	C 753			CCSQCH300J50
C 354 357			CASA330M6R3	C 755			CEA101M6R3LS
C 355 667 668 714			CKSQYB103K50	C 757			CASA6R8M110
C 356			CKSYB332K50	C 851(SDK/WG, EW, EI)			CKSYB473K25
C 359 614			CEAR47M50LS	C 853 854			CEA3R3M50LS
C 360 361			CSZS010M16	C 859			CEA220M6R3LS
C 370 703 704			CCSQCH220J50	C 861 862			CEA3R3M25LS
C 371 512 615			CKSQYB102K50	C 881			CKSQYB153K25
C 372			CCSQCH100D50				
C 373 627			CCSQCH220J50				
C 451 452 453 454			CEA4R7M50LS				
C 455 456 602 653 708 709			CEA100M25LS				
C 457 458 520 855 856 857 858			CEA101M10LS				
C 459			CEA470M16LS				
C 460 518 519 606			CEA220M16LS				
C 461			CCSQCH330J50				
C 462			CCSQCH330J50				
C 501 502			CCSQCH270J50				
C 503 510 511 513			CKSYF473Z50				
C 505			CCSQSL561J50				
C 508(SDK/WG, EW, EI)			CSZSR68M20				
C 509 517 728 729 754 758			CKSQYB103K50				
C 514			CKSYF104Z25				
C 516 621			CEA4R7M16NPLL				
C 521(SDK/WG)			CEA220M10LS				
C 522(SDK/WG)			CEA470M16LS				
C 601			CKSQYB222K50				
C 603 607 612 716			CEA100M6R3LS				

Unit Number :
Unit Name : Display Unit

MISCELLANEOUS(UC, SDK/WG, EV)

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
		IC 901(UC, EV)			PD4139A
		IC 901(SDK/WG)			PD4153A
		IC 902			NJM2903M
		Q 901			2S8822
		Q 902		Chip Transistor	UN5210
		Q 903 904 905 906 907		Chip Transistor	DTC124TU
		D 901(UC, EV)		Chip Diode	MA141WA
		D 901(SDK/WG)		Chip Diode	MA141A
		D 902(UC, SDK/WG) 903(UC, SDK/WG)		Chip Diode	MA141A
		D 902(EV) 903(EV)		Chip Diode	MA141WA
		D 904		Chip Diode	MA141A
		D 905		LED	LN260RCPX
		D 906 907		Chip Diode	MA141K
		D 908 909		LED	CL55UR/YORO
		D 910 911 912 913 914 915 916 917 918 919		LED	CL61YCD680
		D 920 921 922 925 928 929 931 933		LED	CL61YCD680
		D 923 924 926 927 930 932		LED	LN460VCPX
		L 901		Inductor 15μH	LAU150K
		S 901 902 903 904 905 906 907 908 909 910		Switch	CSG-255
		S 911 912 913 914 915 916 917 918 919 920		Switch	CSG-255
		S 921 922 923 924 925		Switch	CSG-255
		IL 901 902		Lamp 8V 60mA	CEL1038
		TC 901(UC)		Trimmer	CCL1012
				Xtal	CSS1023
				LCD(UC)	CW1161
				LCD(SDK/WG, EV)	CW1203

MISCELLANEOUS(EI)

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
**		IC 901			PD4139A
**		IC 902			NJM2903M
**		Q 901			2S8822
**		Q 902		Chip Transistor	UN5210
**		Q 903 904 905 906 907		Chip Transistor	DTC124TU
*		D 901 902 903		Chip Diode	MA141WA
*		D 904		Chip Diode	MA141A
*		D 906 907		Chip Diode	MA141K
*		D 905		LED	LN260RCPX
*		D 908 909		LED	CL55UR/PGORO
*		D 910 911 912 913 914 915 916 917 918 919		LED	CL61PGCD680
*		D 920 921 922 925 928 929 931 933		LED	CL61PGCD680
*		D 923 924 926 927 930 932		LED	LN360GCPX
		L 901		Inductor 15μH	LAU150K
**		S 901 902 903 904 905 906 907 908 909 910		Switch	CSG-255
**		S 911 912 913 914 915 916 917 918 919 920		Switch	CSG-255
**		S 921 922 923 924 925		Switch	CSG-255
**		IL 901 902		Lamp 8V 60mA	CEL1037
				Xtal	CSS1023
				LCD	CW1162

RESISTORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
		R 901			RS1/10S223J
		R 902 907 918 919 920 92 922 925			RS1/10S222J
		R 903			RS1/10S473J
		R 904			RS1/10S221J
		R 905			RS1/10S361J
		R 906			RS1/10S123J
		R 908 924 926			RS1/8S222J
		R 909			RS1/10S222J
		R 910 911 912 913 914 942			RS1/10S204J
		R 915 916 917			RS1/10S104J
		R 927 928 929 930			RS1/10S181J
		R 931 932			RS1/8S331J
		R 933 934			RS1/8S241J
		R 935 936 938 939			RS1/10S331J
		R 937 940			RS1/10S471J
		R 941			RS1/10S391J
		R 943 944			RS1/10S121J

CAPACITORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
		C 901			CKSQVF104Z25
		C 902 905 908			CKSYF334Z25
		C 903(SDK/WG, EV, EI)			CCSQCHO80050
		C 904			CCSQCHO40C50
		C 906 907			CKSQVB103K50

Unit Number :
Unit Name : Amp Unit

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
**		IC 551			TA8215L
**		Q 551			2SD1859
*		D 551		Chip Diode	MA309I
		L 551		Choke Coil	CTH1023
		R 551 552			RS1/10S882J
		R 553 554			RS1/10S123J
		R 555 556			RD1/4PS181JL
		R 557 558 559 560			RD1/4PS487JL
		R 561			RS1/10S821J
		R 562 563 566			RS1/8SOR0J
		R 564 565			RS1/10SOR0J
		C 551 552			CEA4R7M35LL
		C 553 554			CCSQSL271J50
		C 555 556 571			CEA470M10LL
		C 557 558 559 580			CQEA224J63
		C 589		1000 μF/16V	CCH-124
		C 570		220 μF/10V	CCH1014
		C 572			CKSYF173Z50

Unit Number :
Unit Name : Power Supply Unit

MISCELLANEOUS

Mark	Circuit Symbol & No.	Part Name	Part No.
** IC 951			M5F7809M-01
** IC 952			AN6540
** IC 953			AN7805R
** Q 951 953			2SB1243
** Q 952 954 955			2SB1238
** Q 956 960	Chip Transistor		2SC2712
** Q 957	Chip Transistor		UN2210
** Q 958 959	Chip Transistor		UN2212
* D 951			ERC05-10B
* D 952 953 954 955 956 957			ERA15-02VH
L 951	Choke Coil		CTH1015
L 952	Choke Coil		CTH1005

RESISTORS

Mark	Circuit Symbol & No.	Part Name	Part No.
R 952 955 957 959 961 968			RS1/10S223J
R 953(SDK/WG, EV, EI)			RS1/10S152J
R 954(UC)			RS1/10S152J
R 956 958 960			RS1/10S222J
R 963			RS1/10S333J
R 962			RS1/10S152J
R 965			RS1/10S104J
R 966 967			RS1/10S153J
R 969			RS1/10S103J

CAPACITORS

Mark	Circuit Symbol & No.	Part Name	Part No.
C 951 952 958			CEA010M50LS2
C 953	1000 μ F/16V		CCH1003
C 954 957	2200 μ F/16V		CCH1001
C 955	470 μ F/16V		CCH-114
C 956			CEA101M10L2
C 959			CEA101M10LL
C 960			CEA470M10LS
C 961 962 963 964			CKSQVB153K50
C 965 966			CCG-105
C 967			CEA102M16L2

Unit Number :
Unit Name : Mechanism P.C.Board

Mark	Circuit Symbol & No.	Part Name	Part No.
** Q 831	Photo Transistor(DISC SENSE)		PH102-F
* D 831	LED(DISC SENSE)		SLH-34VC3F
** M 833	Motor Unit(LOADING)		CXA2129
** S 832	Switch(DISC SET)		CSN1004

Unit Number :
Unit Name : Carriage P.C.Board

Mark	Circuit Symbol & No.	Part Name	Part No.
** M 831		Motor Unit(SPINDLE)	CXM1033
** M 832		Motor Unit(CARRIAGE)	CXA2133
** S 831		Switch(HOME)	CSN-094

Miscellaneous Parts List

Mark	Circuit Symbol & No.	Part Name	Part No.
		PU Unit	CGY1007

22. PACKING METHOD

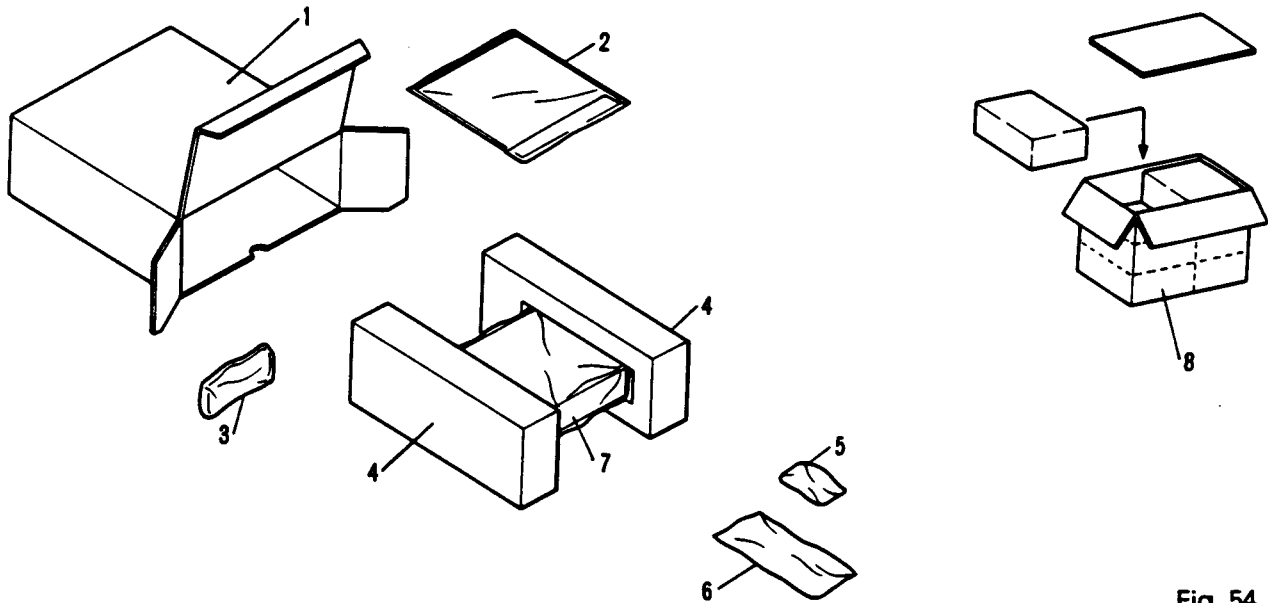


Fig. 54

• Parts List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1	CHG1447	Carton (UC)		3	CDE1894	Cord (UC)
		CHG1449	Carton (WG)			CDE1895	Cord (WG, EW, EI)
		CHG1448	Carton (EW, ES)		4	CHP1119	Styrofoam
	2-1		Card		5	CEA1381	Accessory Assy
	2-2	CRW1020	Label (UC)		5-1	CBH-865	Spring (×2)
		CRW1047	Label (WG, EW, EI)		5-2		Holder (×2)
	2-3		Caution Card		5-3	CNF-111	Strap
	2-4	CRD1168	Owner's Manual (UC)		5-4	CNV1917	Bush
		CRD1171	Owner's Manual (WG)		5-5		Screw Assy
		CRD1169	Owner's Manual (EW)		5-5-1	BMZ30P050FMC	Screw (×2)
			(English, French, German, Spanish)		5-5-2	BMZ40P080FMC	Screw (×4)
		CRD1170	Owner's Manual (EW)		5-5-3	BMZ50P080FMC	Screw (×4)
			(Swedish, Norwegian, Dutch)		5-5-4	CBA-102	Screw (×1)
		CRD1195	Owner's Manual (EI)		5-5-5	CBA1002	Screw (×1)
	2-5		Card (UC)		5-5-6	HMF40P080FUC	Screw (×1)
			Card (WG, EW, EI)		5-5-7	NF50FMC	Nut (×2)
	2-6		Caution Card (WG)		6	CNS1403	Panel
	2-7		Caution Card		7	CEG-114	Cover
	2-8		Card (UC) (×2)		8	CHL1447	Contain Box (UC)
	2-9		Caution Card (WG)				
	2-10		Passport				

Service Manual

**SERVICE GUIDE
ORDER NO.
CRT 1161**

CD MECHANISM UNIT

CX-173

- This service manual is a description of the CD mechanism found in the model numbers listed in the table below.
- When performing repairs use this manual together with the specific manual for the model under repair.

Model	Service Manual
DEH-66/UC	CRT1166
DEH-66SDK/WG	
DEH-66/EW	
DEH-66/EI	

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan

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1. DISASSEMBLY

• Disassembly of the Carriage Unit

Note: There may be times when the names of parts used in this manual are not the same as those used in the lists accompanying the Exploded View. If a different name is used here, the part name given in the Exploded View is also provided in parentheses ().

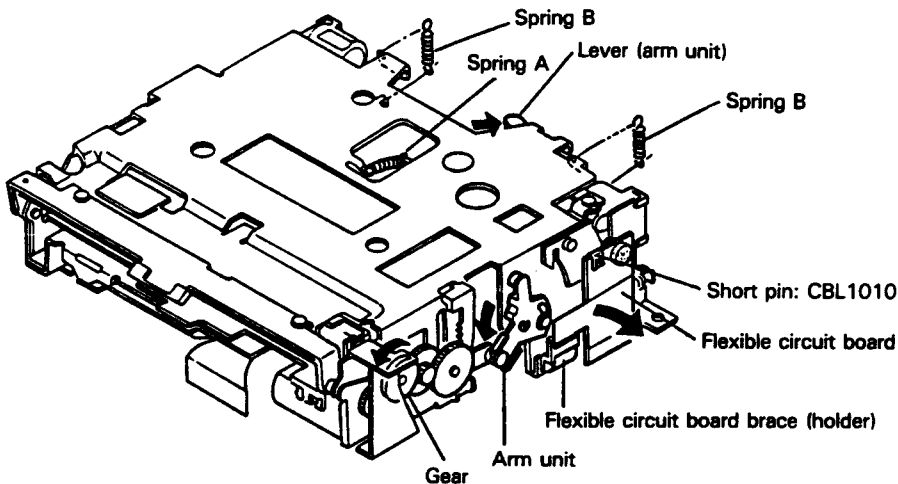


Fig. 1

1. Put the mechanism unit into a loading complete state. (Move the lever back and rotate the gear while pressing down lightly on the arm unit. Rotate the gear until the three carriage unit shafts are free and the unit is supported by the four damper units.
2. Remove Spring A and two Springs B.
3. Remove the flexible circuit board from the flexible circuit board brace.

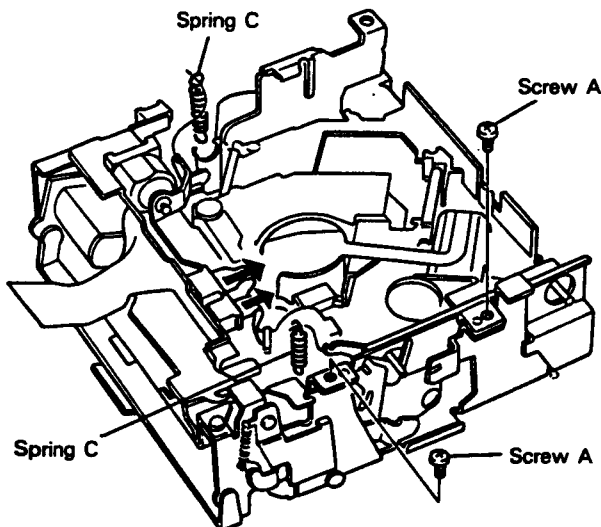


Fig. 2

4. Turn the mechanism unit upside down.
5. Remove the two Springs C.
6. Remove the two flexible circuit boards from their connectors.
7. Remove the two Screws A.

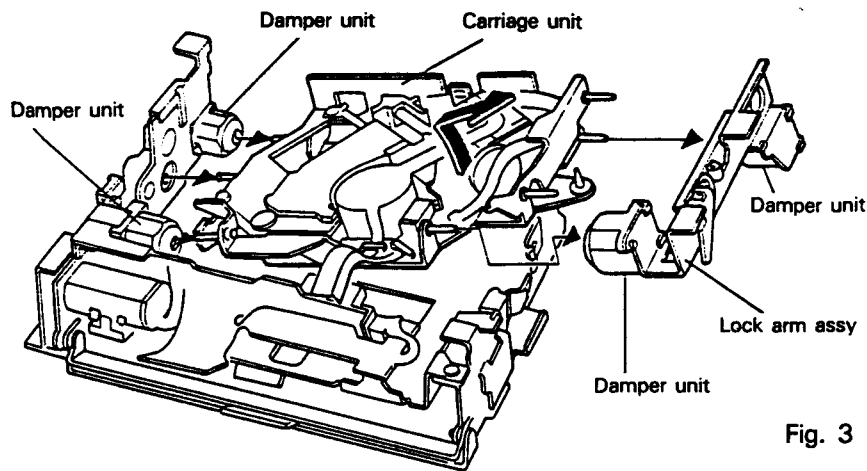


Fig. 3

8. Lift the lock arm assembly and then pull out the carriage unit.

9. Remove the carriage unit from the lock arm assembly.

Note: The damper units are lined with a thin rubber film. Be careful not to damage this when disassembling.

● Disassembly of the Carriage Motor Unit

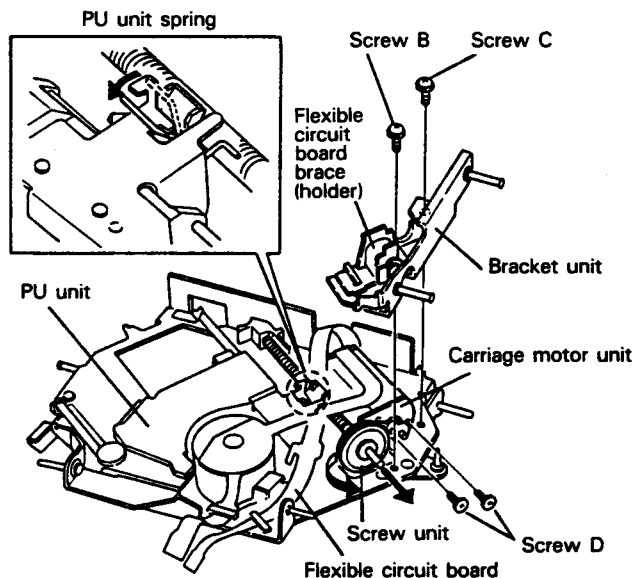


Fig. 4

1. After removing the Screw B and Screw C, remove the bracket unit. At this time remove the flexible circuit board from the flexible circuit board brace.

2. Remove the belt.

3. Cock the PU unit spring as shown in Fig. 4 and then move the PU unit to its outermost position. (Cocking the spring disengages the screw unit so that the PU unit can be moved by hand from above.)

4. Pull the screw unit out of the assembly.

5. Remove the two Screws D and then the carriage motor unit.

Note: When reinstalling the carriage motor unit, tighten Screw D and seal it.

● Disassembly of the PU Unit

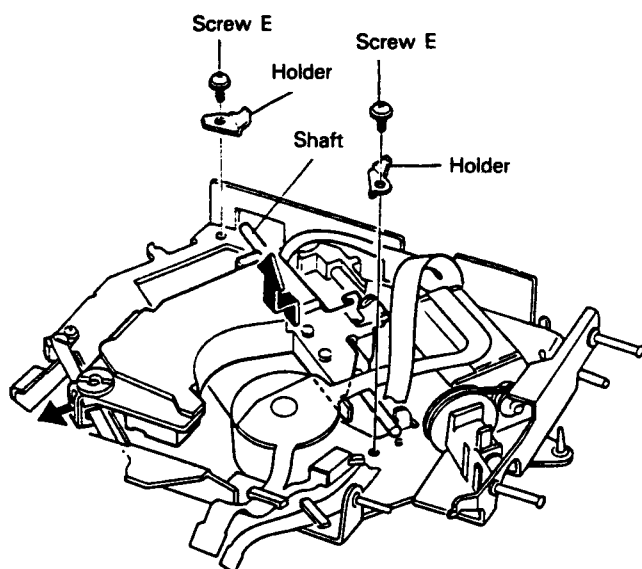


Fig. 5

1. Cock the PU unit spring as shown in Fig. 4. Move the PU unit to the center of the shaft for easy removal.
2. Remove the two Screws E and then the holders.
3. Remove the PU unit, lifting it from the shaft side where the holders have been removed and being careful not to catch the shaft on the opposite side.
4. Pull the shaft out of the PU unit.

● Disassembly of the Spindle Motor Unit

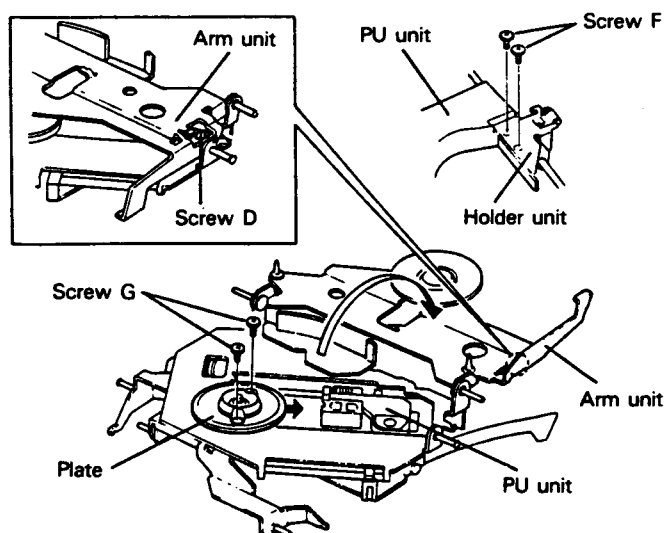


Fig. 6

1. Remove the two Screws F and then remove the holder unit from the PU unit.
2. Cock the PU unit spring as shown in Fig. 4 and move the PU unit to its outermost position.
3. Turn the whole carriage unit right side up.
4. Remove Screw D and turn the arm unit upside down.
5. Turn the spindle motor plate so that the holes on the plate are at the position of the screws underneath.
6. Remove the two Screws G.
Note: When reinstalling the spindle motor unit, tighten the Screws G and seal them.
7. Slide the spindle motor unit onto its side and remove it.

• Disassembly of the Loading Motor Unit

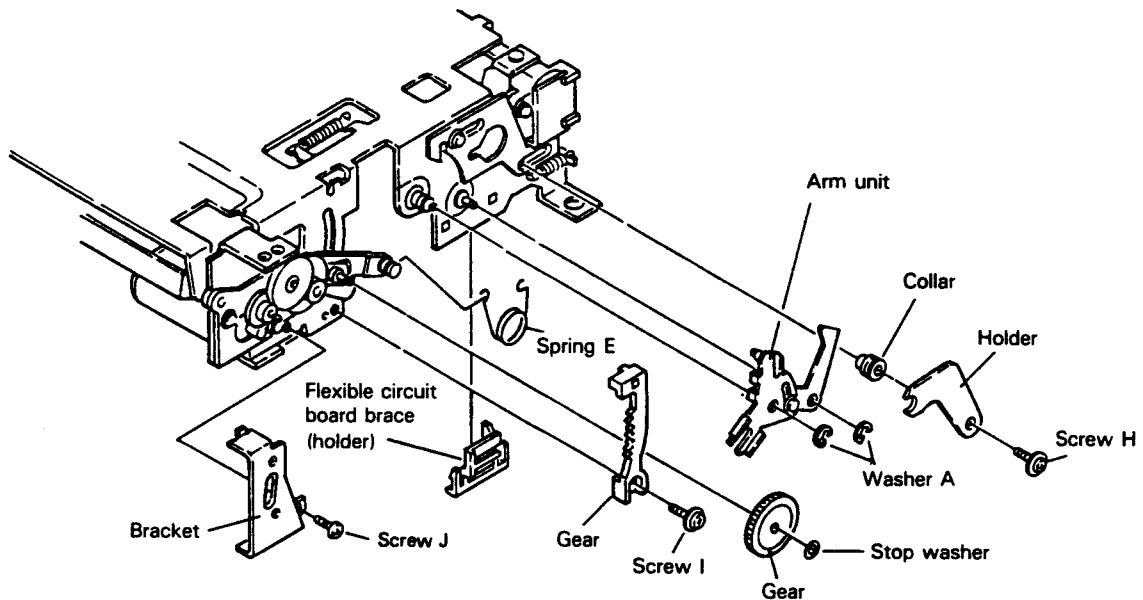
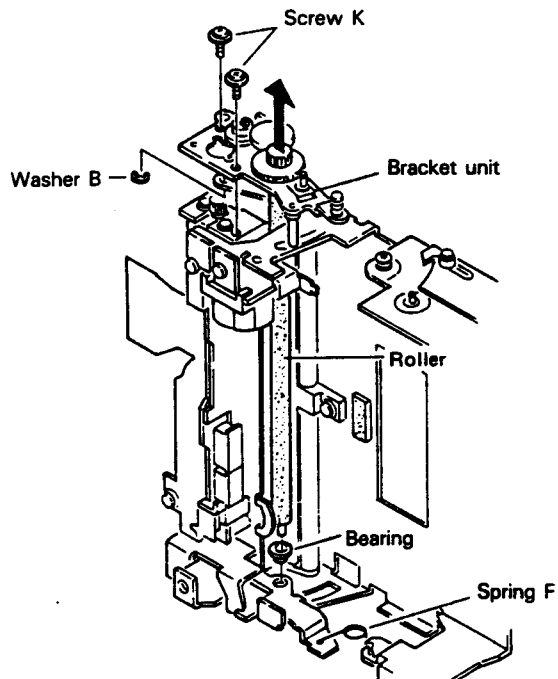


Fig. 7

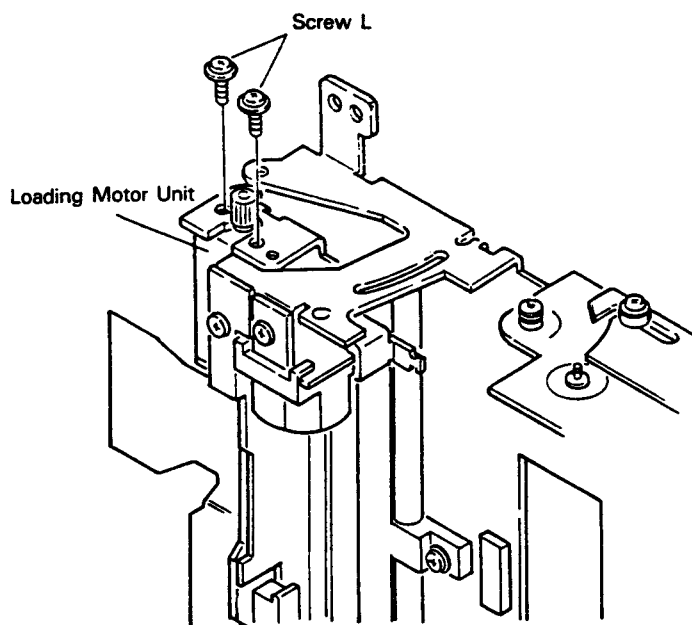
1. Remove the carriage unit.
(Refer to the previous section entitled, "Disassembly of the Carriage Unit.")
2. Remove the flexible circuit board brace.
3. Remove Screw H and then the holder.
Note: When Screw H is removed, the collar will also come free. Be sure not to lose it.

4. Remove the Screw E.
5. Remove the two Washers A and then the arm unit.
6. Remove the stop washer and then the gear.
7. Remove Screw I and then the gear.
8. Remove Screw J and then the bracket.



9. Remove Spring F.
10. Remove washer B.
11. Remove the two Screws K and then pull out the bracket unit.
Note: The bearing at the tip of the roller will also come loose. Be careful not to lose it.

Fig. 8



12. Remove the two Screws L and then the loading motor unit.

Fig. 9

2. MECHANISM DESCRIPTION

• Loading Operation

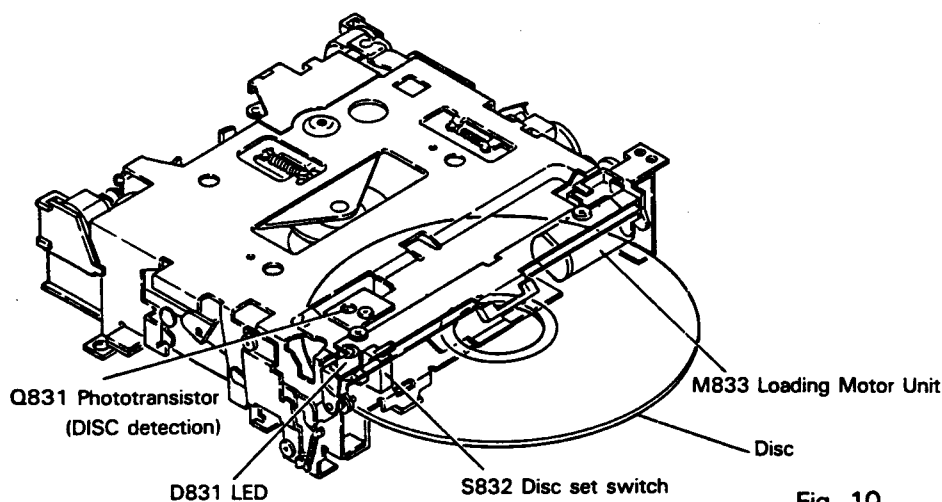


Fig. 10

1. When a disc is inserted into the unit, it enters between the LED and the phototransistor with the result that the light from the LED to the phototransistor is blocked.
2. When the phototransistor detects a disc presence in the unit, the loading motor begins to rotate and loading begins.
3. When the loading motor rotates, the roller is turned and the disc is moved into the unit. (Fig. 11)

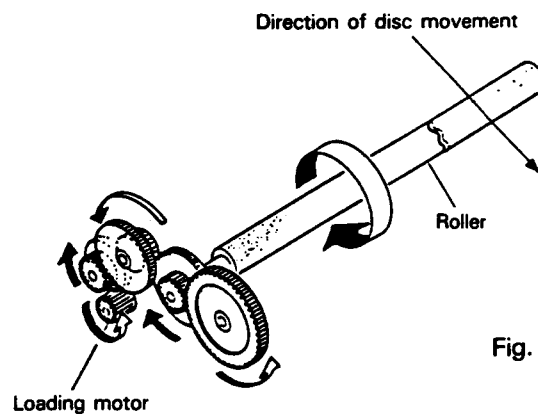


Fig. 11

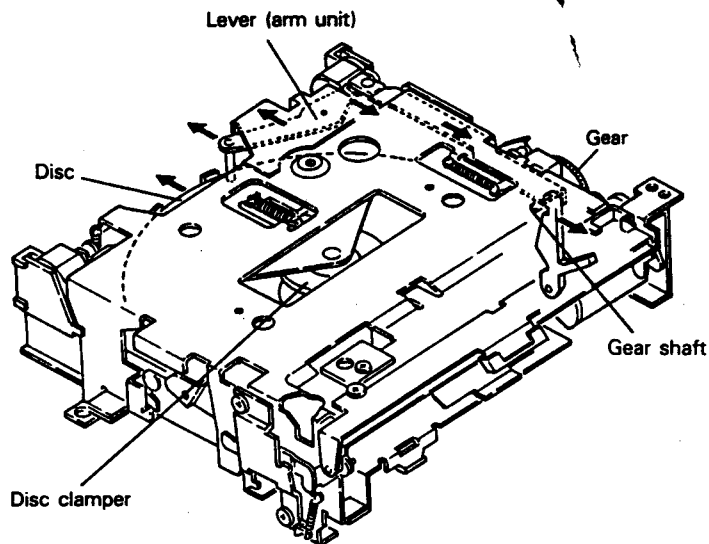


Fig. 12

4. When the disc pushes on the lever, the gear shaft lock is released. The gear meshes with another internal toothed gear and is lowered. (See Figs. 12, 13)
5. The action of the gear shaft moving down lowers the disc clamber and the disc is held in place.
6. As the gear is lowered when it meshes with the internal toothed gear, the gear unit also is lowered and the disc set switch pressed.

7. At the same time, the disc door is lowered and the disc insert door is blocked to prevent the introduction of another disc.

The three shafts of the carriage unit are in a free mode and the carriage unit is in an anti-vibration mode supported by the four damper units. (Fig. 14)

When the disc set switch is turned on, loading motor rotation stops and the loading operation is complete.

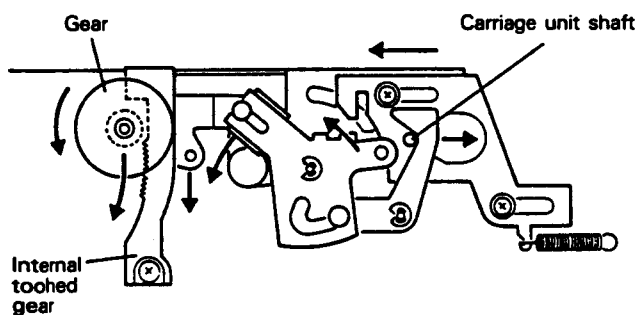


Fig. 13

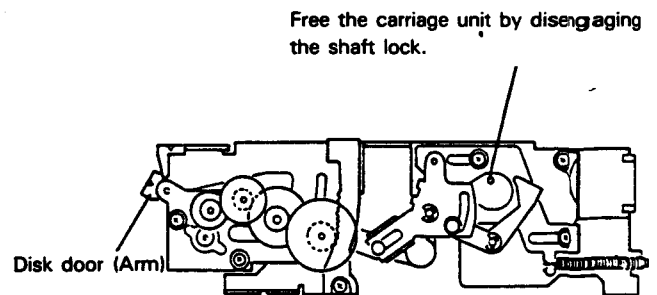


Fig. 14

(view of reverse side)

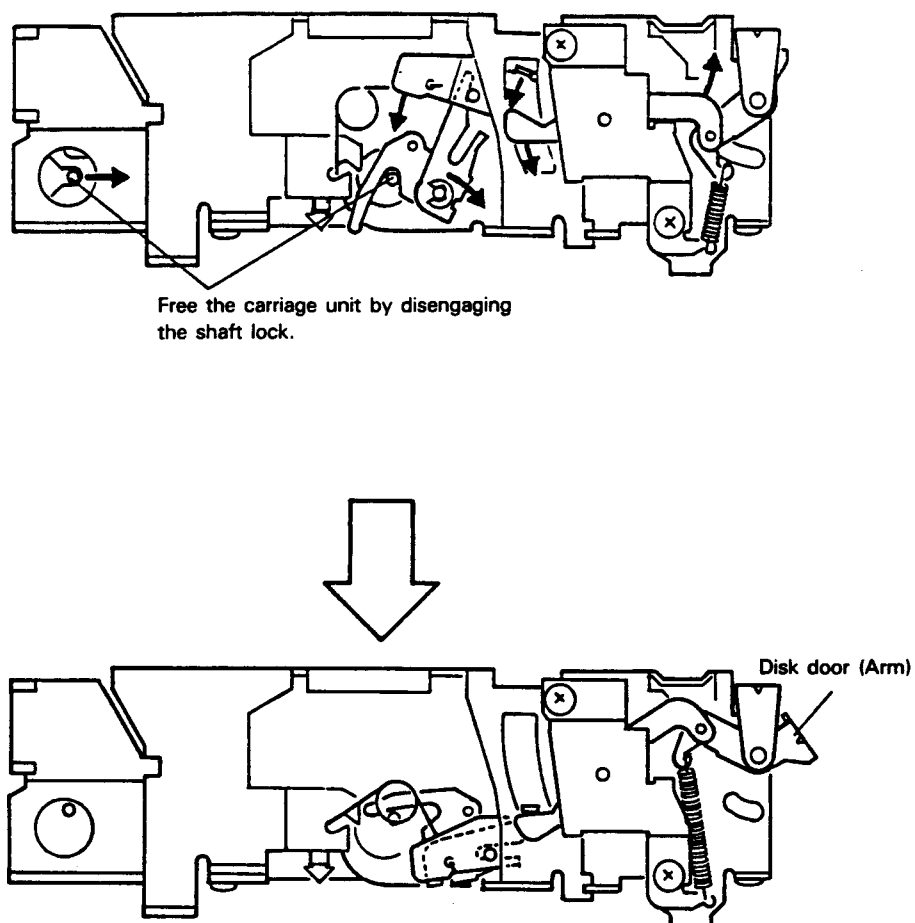


Fig. 15

Service Manual

PIONEER
The future of sound and vision.



**ORDER NO.
CRT 1177**

COMPACT DISC PLAYER

CDX-3

UC, EW

COMPACT
disc
DIGITAL AUDIO

Note:

- See the separate manual CX-173 (CRT1161) for the CD mechanism description.
 - Refer to the service manual CDX-M100 (CRT1136) for finding circuit description which are not shown in this manual.
-
- The following power supply parts differ according to the unit's serial number.

	Serial No.	Serial No.
	00001 ~ 00500	00501 ~
IC951	KHA1001B D/D Converter	L780S05-LR Regulator
C957	—	CKSYF334Z25
C958	—	CKSYF104Z25

CONTENTS

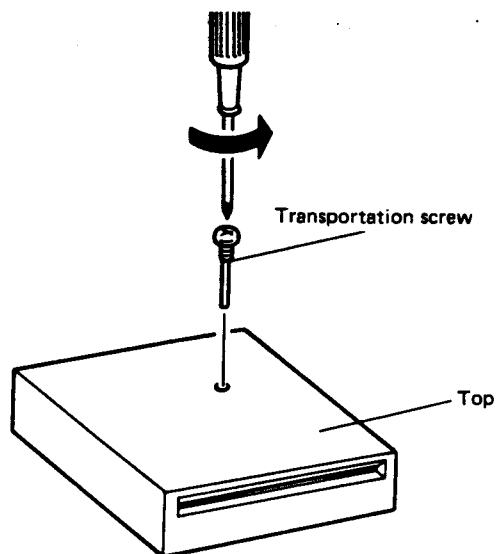
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FS OCT. 1988 Printed in Japan

• CD Player Service Precautions

1. Since these screws protect the mechanism during transport, be sure to affix it when it is transported for repair, etc.
2. For pickup unit (CGY1007) handling, please refer to "Disassembly" (Fig. 13) During replacement, handling precautions shall be taken to prevent an electrostatic discharge (protection by a short pin).
3. During disassembly, be sure to turn the power off since an internal IC might be destroyed when a connector is plugged or unplugged.



SPECIFICATIONS

General

System	Compact disc audio system
Usable discs	Compact discs
Signal format	Sampling frequency: 44.1 kHz Number of quantization bits: 16; linear
Power source	1 4.4 V DC (10.8–15.6 V allowable)
Grounding system	Negative type
Power consumption	5.5 W
Maximum power consumption	9 W
Dimensions (chassis)	180(W) × 50(H) × 150(D) mm
(nose)	170(W) × 46(H) × 7(D) mm
Weight	1.3 kg (2.9 lbs.)

Audio

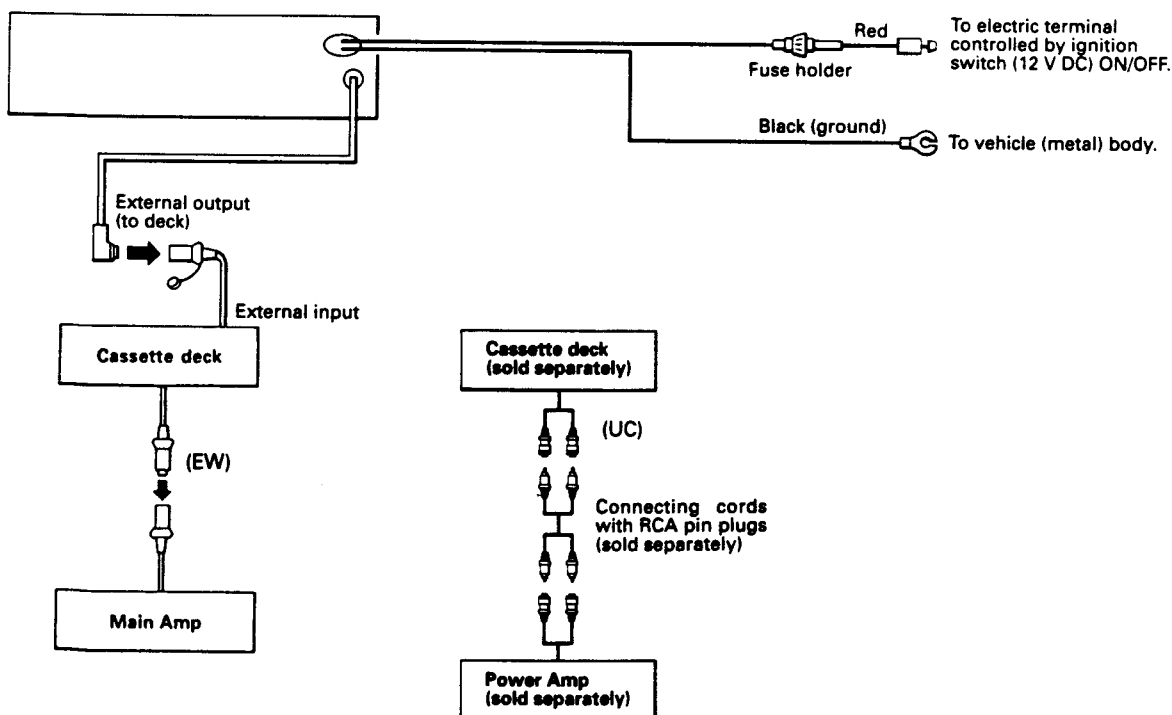
Frequency characteristics	5–20,000 Hz (±1 dB)
Signal-to-noise ratio	85 dB (1 kHz) (IEC-A network)
Dynamic range	87 dB (1 kHz)
Wow and flutter	Below measurement range
Distortion factor	0.008% (1 kHz, 0 dB)
Output voltage	250 mV (1 kHz, 0 dB)
Number of channels	2 (stereo)

Note:

Specifications and the design are subject to possible modification without notice due to improvements.

1. CONNECTION

- Before making final connections, make temporary connections then operate the unit to check for any connecting cord problems.
- Refer to the instruction manual for details on connecting the various cords of the deck and power amp then make connections correctly.



2. SAFETY INFORMATION (CDX-3/EW)

1. Safety Precautions for those who Service this Unit.

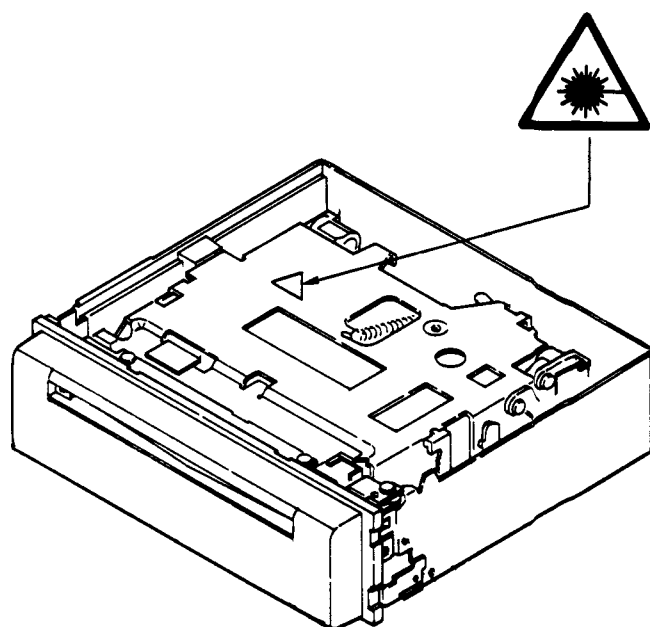
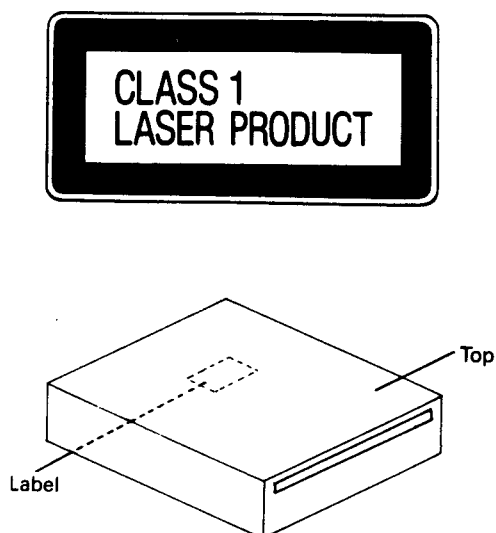
- Follow the adjustment steps (see pages 14 through 35) in the service manual when servicing this unit. When checking or adjusting the emitting power of the laser diode exercise caution in order to get safe, reliable results.

Caution:

1. During repair or tests, minimum distance of 13cm from the focus lens must be kept.
2. During repair or tests, do not view laser beam for 10 seconds or longer.

2. A "CLASS 1 LASER PRODUCT" label is affixed to the bottom of the player.

3. The triangular label is attached to the mechanism unit plate unit.

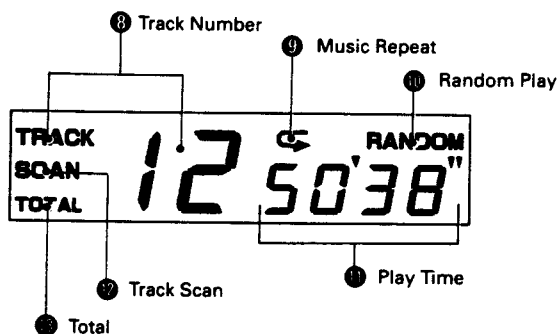
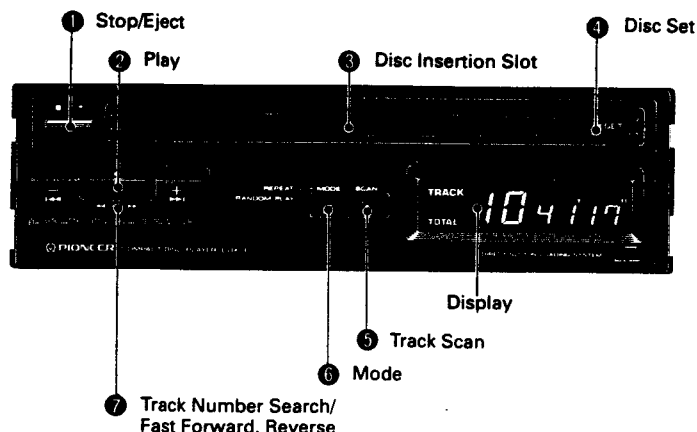


4. Specifications of Laser Diode

Specifications of laser radiation fields to which human access is possible during service.

- | | |
|---------------|------------------------------------------------------------------------|
| Wavelength | = 780 nanometers |
| Radiant power | = 69.7 microwatts |
| | (Through a circular aperture stop having a diameter of 80 millimeters) |
| | 0.55 microwatts |
| | (Through a circular aperture stop having a diameter of 7 millimeters) |

3. PLAYING COMPACT DISCS



- Turn the cassette deck power switch or the tuner power switch to the OFF position.

1 When a disc is inserted half-way into the disc insertion slot ③ with its label side upward, the disc is automatically loaded and played.

During the first five seconds after loading the disc, the "TOTAL" indicator ⑬ appears in the display, and the total number of tracks ⑧ and their total playing time ⑬ are indicated.

2 Use track number search to select a track.

Press the (+) side of button ⑦ to increase the number at position ⑧, or the (-) side to decrease the number. Holding either side of button ⑦ down changes the track number at high speed.

3 Set the volume, balance, bass and treble to the desired level using the cassette deck controls.

4 To stop CD play, press button ①.

(To restart CD play, press button ②. CD play restarts from the point where it was stopped.) To eject the disc, press button ① again. If the ejected disc is pushed back in, it is loaded and played again.

Note:

- It takes a short time after a disc is loaded before it is played. This is because the CD player requires a setup time to read digital signals from the disc.
- When ◀ SET ④ is displayed, a disc is loaded. If another disc is inserted into the slot at this time, the discs may be damaged or the player may malfunction.
- Do not insert two discs into the slot at the same time. This may cause a malfunction.
- The cassette tape deck and tuner can be used while a disc is in the set position.
- If the engine is started during CD play, or if the ignition key is turned OFF and is then turned to ACC or ON, CD play stops. Press button ② to restart CD. Playing will resume close to where it left off.

- When a space of a few seconds exists between the selections of the disc being used, ⑬ will show -*02, -*01 when the spaces are passed.

Using Track Scan

This function lets you scan through the tracks on a disc by playing only the first ten seconds of each track.

1. Press button ⑤ ("SCAN" ⑤ will appear on the display).
 2. To cancel track scan and continue playing the current track, press button ⑤ again.
- After track scan has played through all of the tracks, disc play resumes from the beginning of the track from which track scan was started.

Using Music Repeat and Random Play

Each time ⑩ is pressed, the mode is changed in the following order: Repeat ("↺" ⑨ appears)→Random Play ("RANDOM" ⑩ appears)→Release.

Music Repeat

To repeat the music you are listening to, select the repeat mode ("↺" ⑨ appears).

- When music repeat is not operational, the whole disc will be played repeatedly.

Random Play

To play music randomly, select the random play mode ("RANDOM" ⑩ appears). Once the current track has been played, the microprocessor will randomly select the next and subsequent tracks.

- Since selections are played in random order, the same selection may be played twice in succession.

Using Fast Forward and Reverse

To fast forward, hold down button ⑦ and press the (+) side of button ⑦. To reverse, hold down button ⑦ and press the (-) side of button ⑦.

- Sound is output during fast forward and reverse operations.

4. CIRCUIT DESCRIPTION

(1) DIB, AUXB Signals

These signals are used to control the operations of the CD player. The DIB signal is output from the main unit (tuner, cassette deck, etc.), and goes high while the main unit is operating. When this signal is received, IC751 pin ③ goes low; the CDX-3 stops operation then enters the standby mode.

When the main unit stops operation, the DIB signal goes low to enable the operation of the CDX-3. At this time, if the CDX-3 is stopped during playing, play starts automatically from the tune which was being played when the CDX-3 was stopped.

The same operation is also performed when the ACC function is deactivated.

When the DIB signal goes high while the CDX-3 is operating, the CDX-3 stops operation and enters the stop mode.

The AUXB signal is output at high level while the CDX-3 is operating, signaling to the main unit that the CDX-3 is operating.

(Note: Low = 0 V, High = 14.4 V)

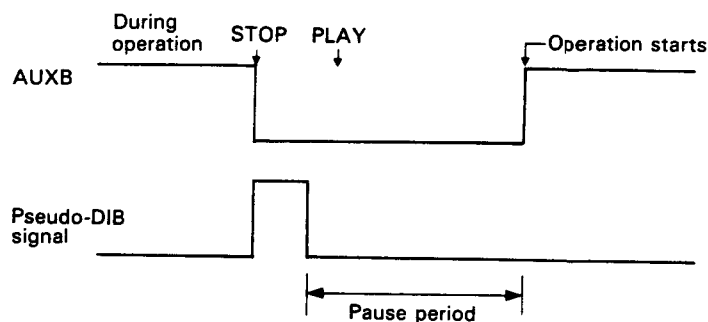
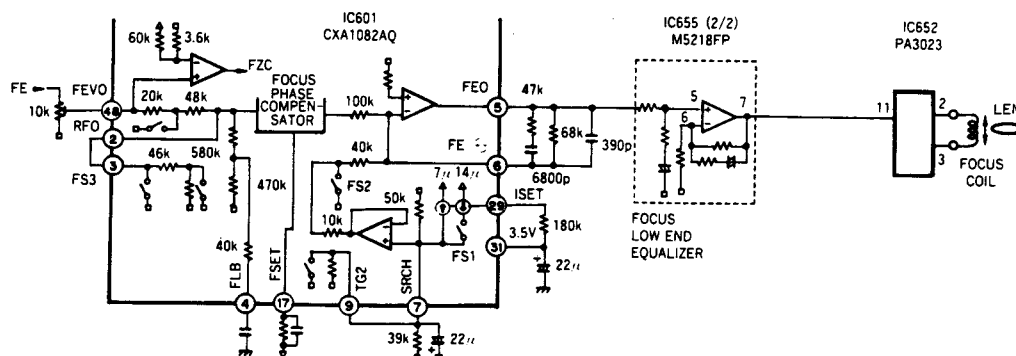


Fig. 1

(2) Focus Servo Circuit



FEVO and FEO are in phase.

Fig. 2 Focus Servo Section Block Diagram

A block diagram of the focus servo circuit is shown above. The capacitor connected to pin ④ provides a time constant to boost the low-frequency response in the continuous play mode. The internal constant current (ISET current) is determined by the resistance connected to pins ②⑨ and ③① : 7 μ A when a 180-kohm resistor is connected.

$$\text{ISET current} = 1.276 \text{ V/R}$$

This current is used for the focus search, tracking jump and the carriage kick operations. The reference voltage for the inverted input of the FZC comparator is set to $(V_{CC}-V_C) \times 5.7\%$ (approx. 140 mV).

a) In-focus (search voltage):

An in-focus sequence is used to drive the laser lens within the focus S-curve (approx. $10\text{ }\mu\text{m}$) to close the servo loop when it is focused. The search voltage is determined by the sensitivity of the focus actuator which is designed so that the lens drive distance is set to $\pm 1\text{mm}$. In this system, the following voltages are obtained at pin ⑦.

When FS1 is OFF:

$$-7\text{ }\mu\text{A} \times 22\text{ kohms} \times 0.63 = -0.097 \approx -0.1\text{ [VC]}: \rightarrow \text{Lens UP}$$

(22 kohms = $50\text{ kohm} // 37\text{ kohm}$)

When FS1 is ON:

$$(14 - 7)\text{ }\mu\text{A} \times 22\text{ kohms} \times 0.63 \approx +0.1\text{ [VC]}: \rightarrow \text{Lens DOWN}$$

As above, FS1 is turned ON and OFF alternately to move the lens up and down. (The time constant for moving up/down is determined by the resistor and capacitor connected to pin ⑦.)

The focus operation is not designed for auto sequence operation. It is executed by following the timing chart (see Fig. 3). This is because the "focus close" command is output only when the lens is moved up to prevent the focus operation from malfunctioning.

* "Lens UP" shows that the lens is moved up close to the disc surface.

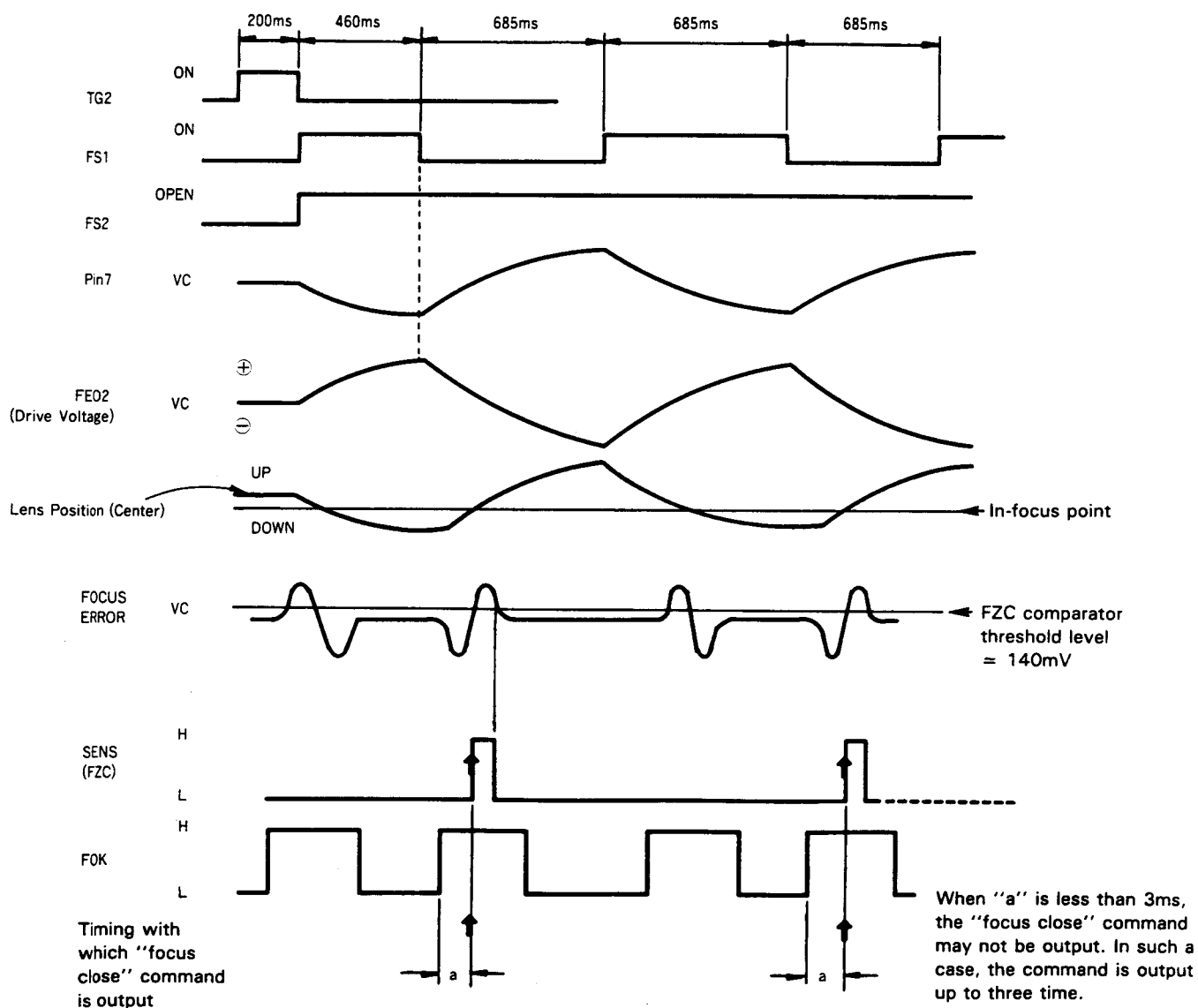


Fig. 3 Focus Close Timing Chart

(4) APC (Automatic Power Control) Circuit

As the laser diode has negative temperature characteristics as well as high-level optical output when driven by a constant current, it is necessary to control the current using a monitoring photodiode to stabilize the out-

put power. For this purpose, an APC (Automatic Power Control) circuit is employed. In this system, an LDI of approx. 50 — 60 mA is used.

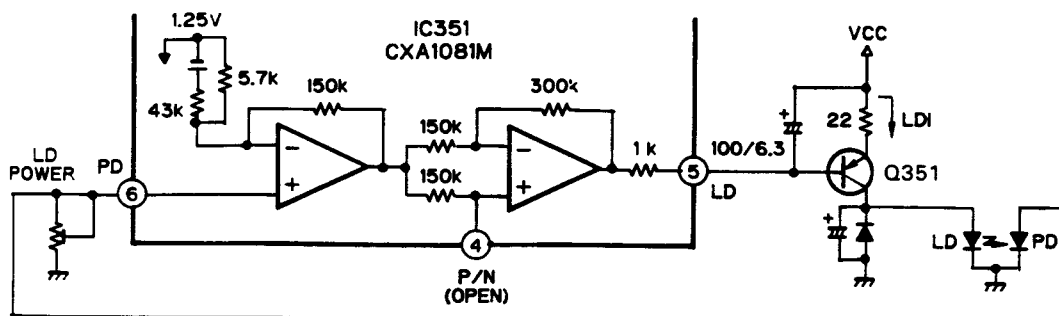


Fig. 5 APC Circuit

(5) Search Sequence

Example: To search the 4th tune when playing the 3rd tune

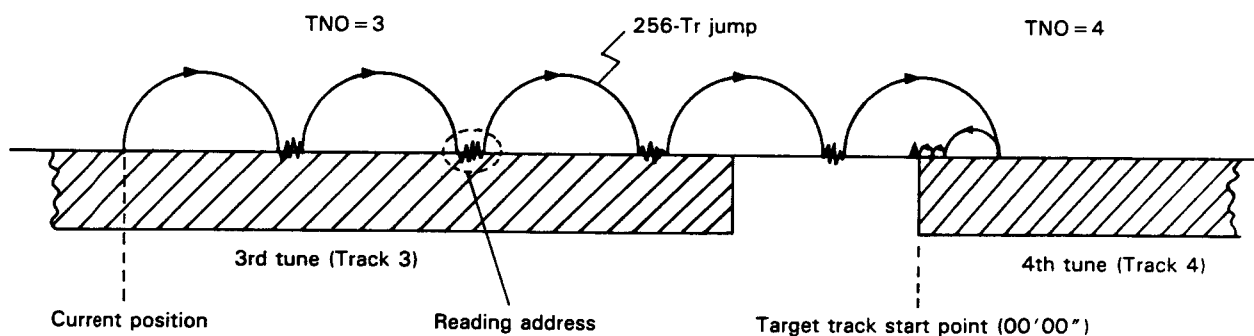


Fig. 6

- ① After comparing the current track number with the target track number, since the target track number is higher than the current one, the laser pick-up jumps outward by 256 Tr.
- ② The address of the current position is read to compare the track numbers again.
- ③ Since the target number is higher, the laser pick-up jumps outward by 256 Tr again.
When operations ② — ③ are repeated, the current track number will become the same as the target track number.
- ④ Then the number of tracks between the relative address and the beginning of the next tune is calculated and the laser pick-up jumps.

- ⑤ The relative address at the current position is read to compare it with the target (00'00"). If both addresses are the same, the searching sequence finishes. If not, the calculation and jump operation will be performed again.

When the operations in ④ and ⑤ are repeated, [00'00"] is obtained, the search sequence will be released and the player enters the PLAY mode.

* In actual operation, the laser pick-up returns by 1 Tr to prevent missing the beginning of the tune before starting play.

(3) Tracking, Carriage Servo Circuit

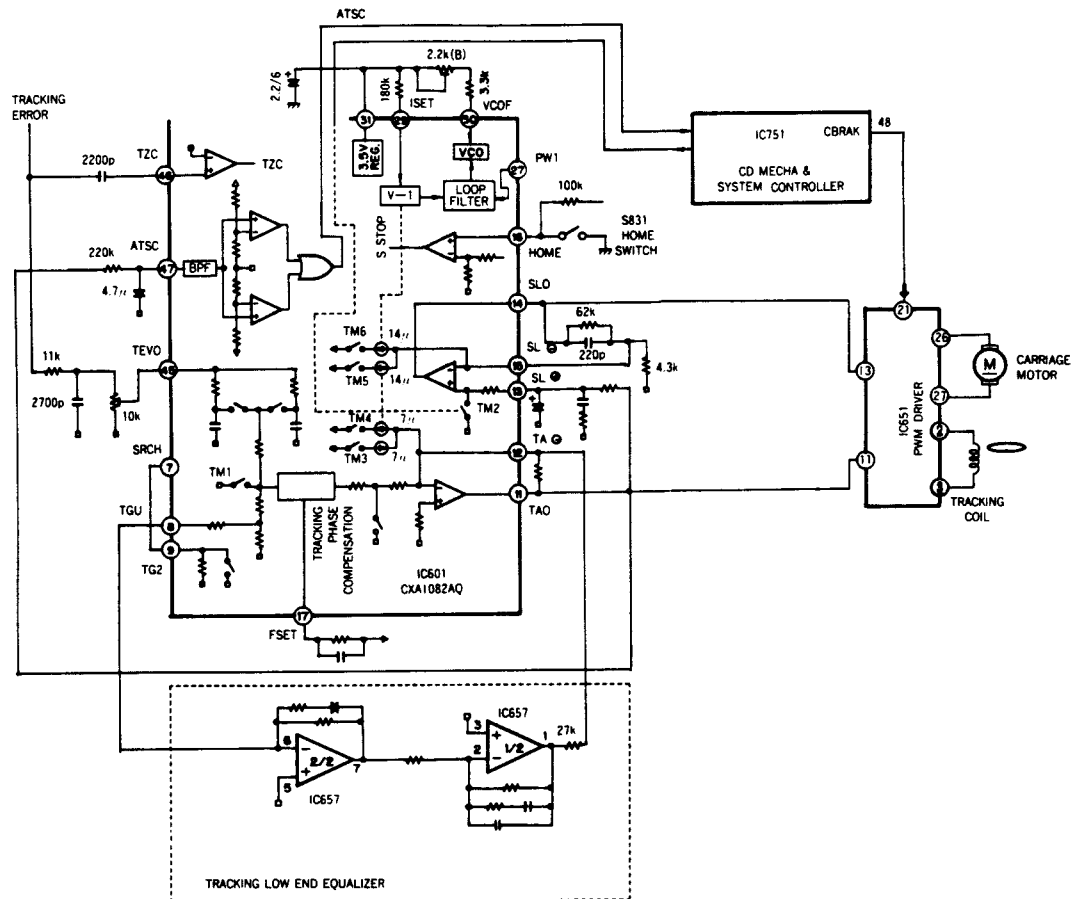


Fig. 4 Tracking, Carriage Servo System Block Diagram

The above figure is a block diagram of the tracking/carriage servo circuit. To perform tracking jump operation (of the laser pick-up) in the FWD (forward) or REV (reverse) direction, TM1 is turned ON and at the same time, TM3 and TM4 are turned ON and OFF. At this time, the voltage generated at pin ⑪ TAO is determined by the current flowing in TM3/TM4 and the feedback resistance from pin ⑫.

That is:

$$\text{Track jump peak voltage (TAO)} = \text{ISET i (tracking)} \times R_{\text{TAO}} = 7 [\mu\text{A}] \times 82 (\text{kohms}) = 0.57 [\text{VC}]$$

To perform carriage kick operation in the FWD (forward) or REV (reverse) direction, TM2 is turned ON and at the same time, TM5 and TM6 are turned ON and OFF. At this time, the voltage generated at pin (14) SLO is determined by the current flowing in TM5/TM6 and the feedback resistance from pin (15).

That is:

$$\text{Carriage kick voltage (SLO)} = I_{SET} \times R_{SLO} = 14 [\mu A] \times 62 [k\Omega] = 0.87 [V]$$

The polarities of pin ④⑤ TEVO and pin ①① TAO are reversed.

a) Tracking Equalizer:

This circuit is constructed in 2 stages and consists of a phase compensator (for high frequencies) incorporated in an IC and externally connected low-frequency compensator connected in parallel. The former is the main path and the latter from the side path. These signals are added in pin ⑫ of the TAO amp so that the specified equalization characteristics are obtained.

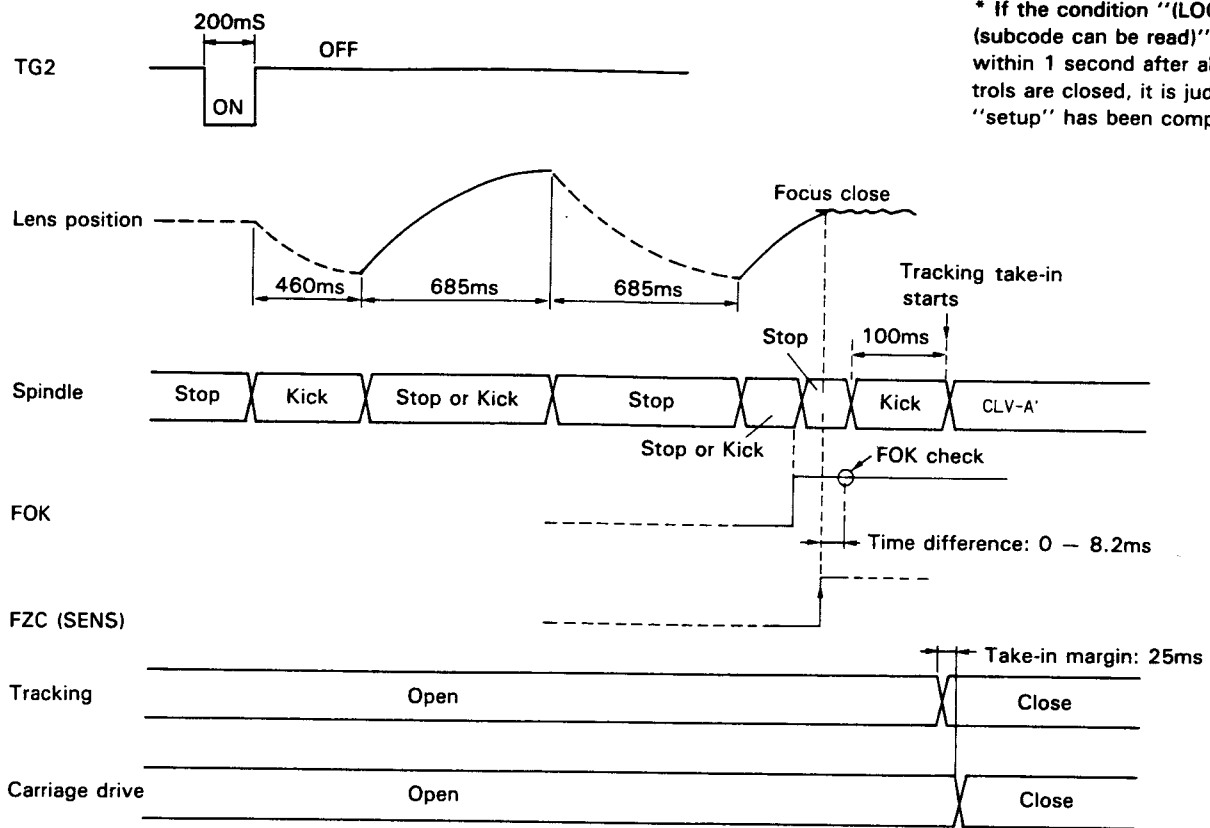
(6) SETUP Sequence

Fig. 7

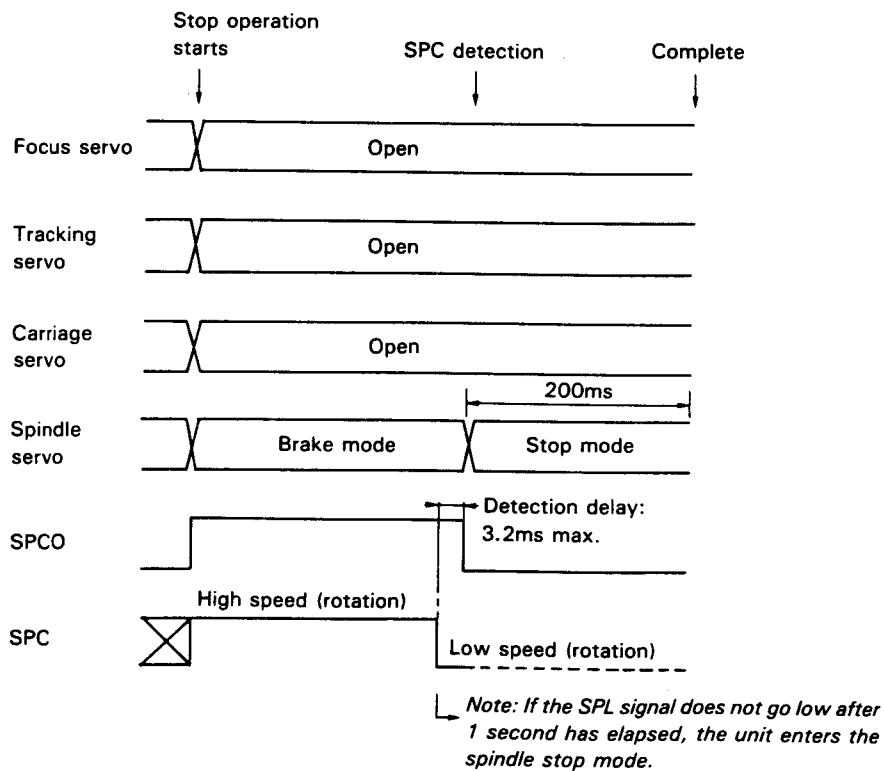
(7) Spindle Stop Sequence

Fig. 8

(8) Flow Chart

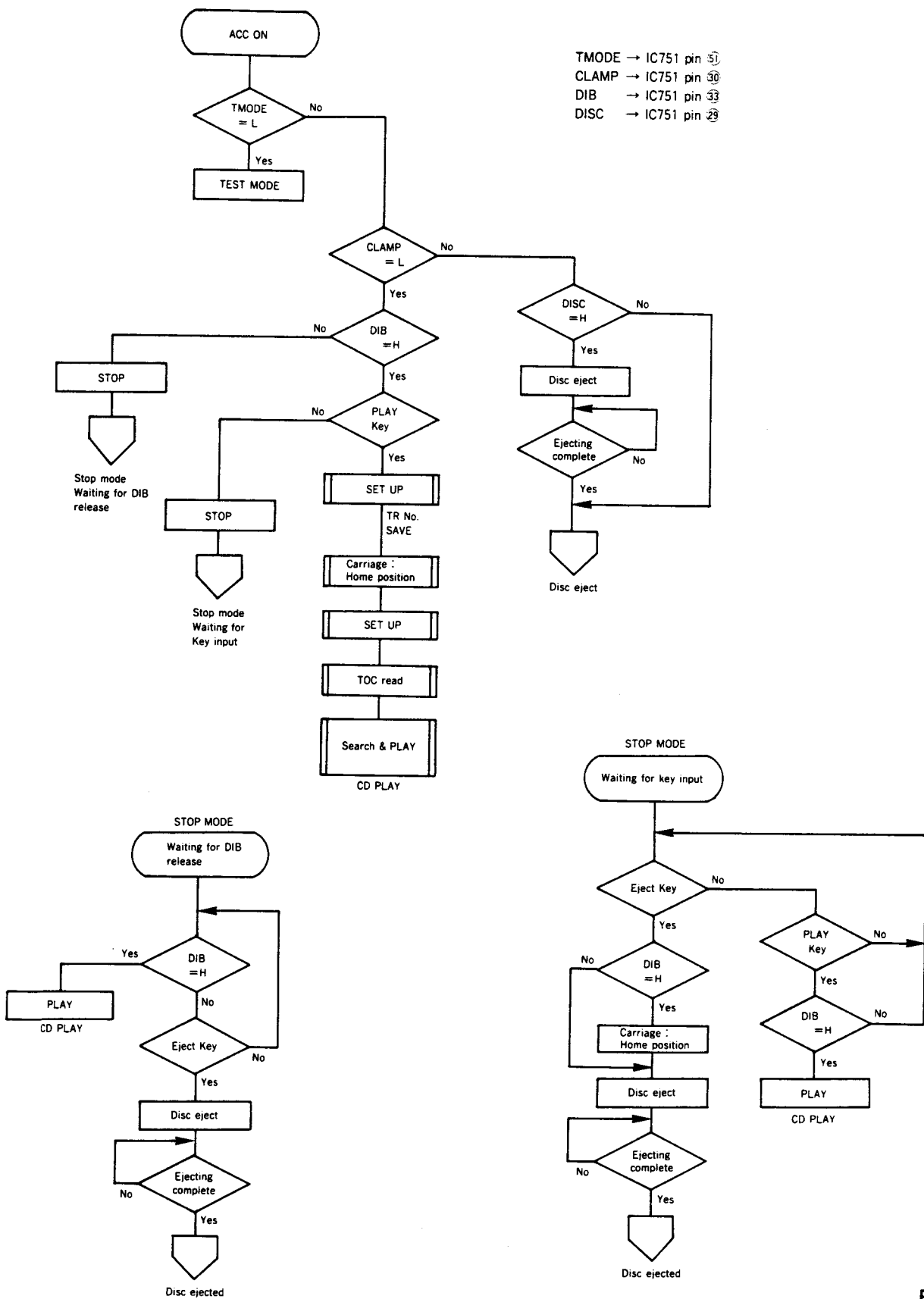


Fig. 9

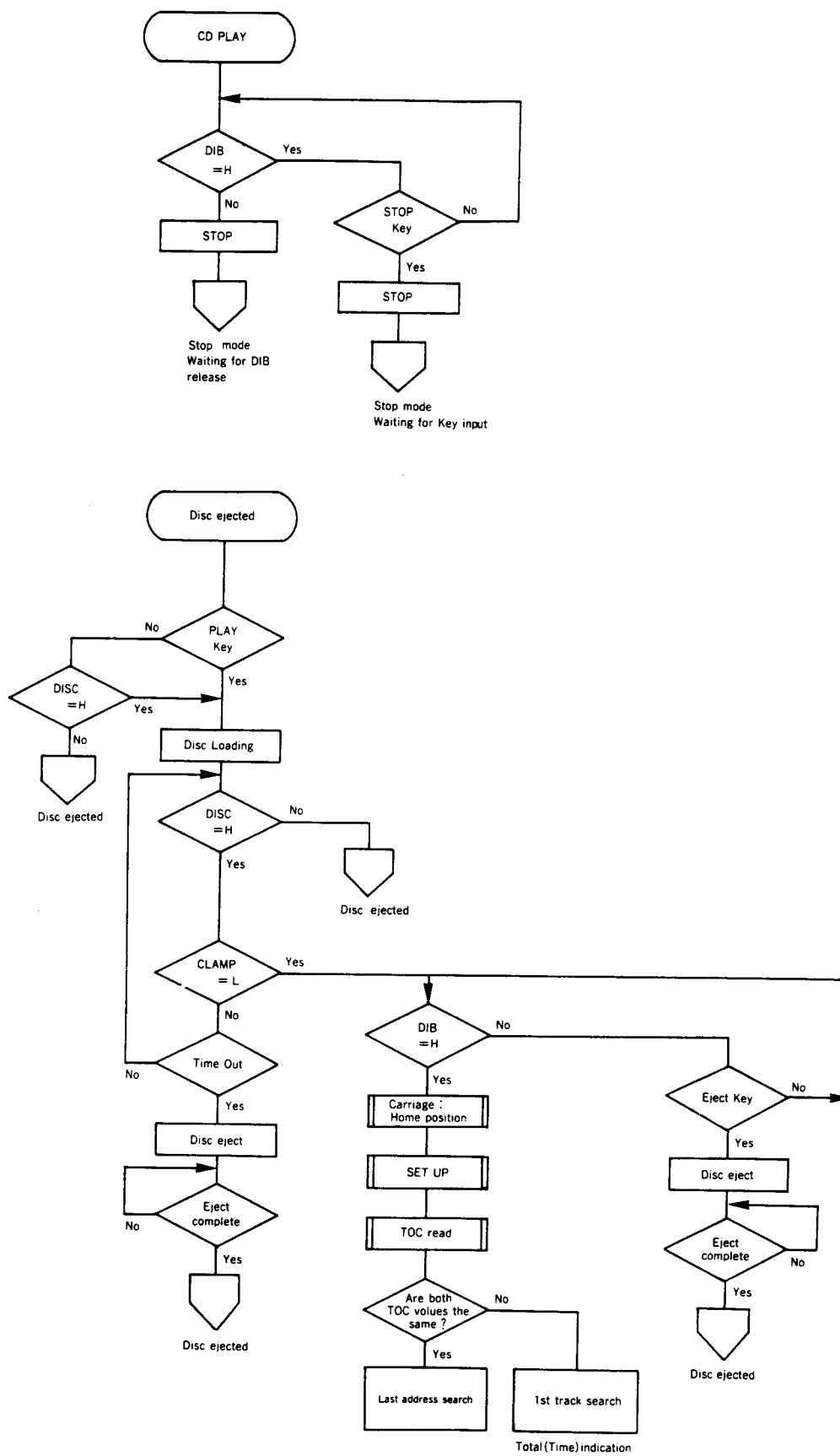


Fig. 10



5. DISASSEMBLY

• Removing the Case

1. Insert and turn a flat screwdriver to remove the case.

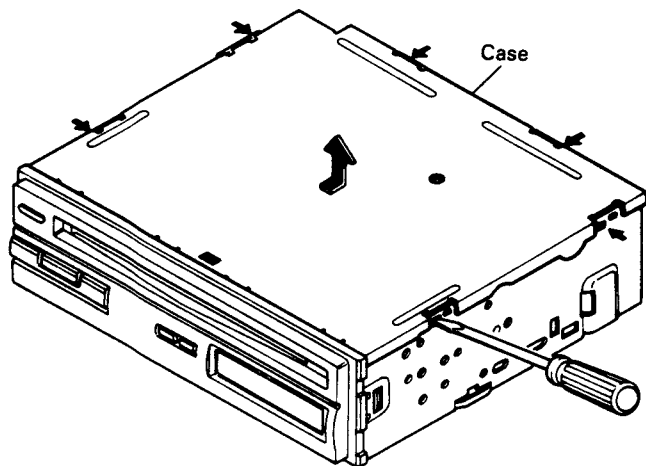


Fig. 11

• Removing the Grille Assy

1. Press claws at three locations indicated by arrows, and pull out grille assy.
2. Disconnect the connector, and then remove the grille assy.

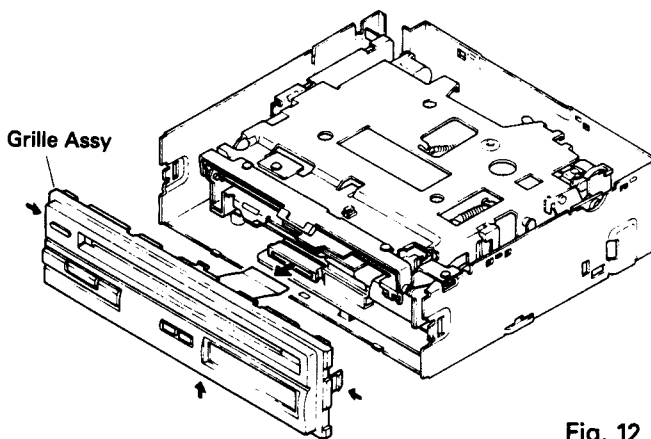


Fig. 12

• Removing the CD Mechanism Unit

1. Remove the four screws.
2. Disconnect the two connectors, and then remove the CD mechanism unit.

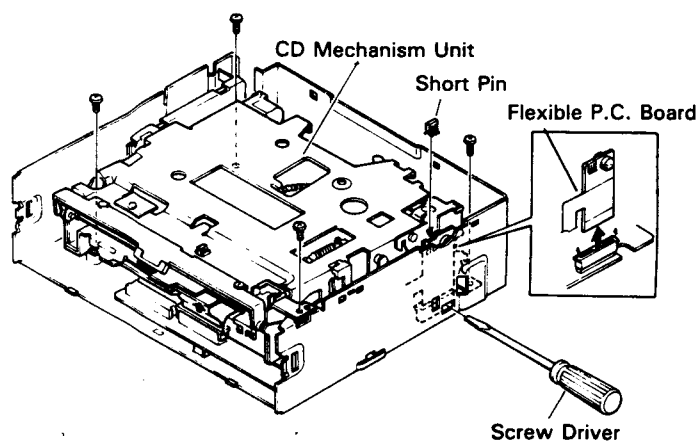


Fig. 13

NOTE: When remove the flexible p.c. board, always insert a shorting pin or insert an inter-pattern short (jumper) before disconnecting the flexible p.c. board from the connector.

6. BLOCK DIAGRAM

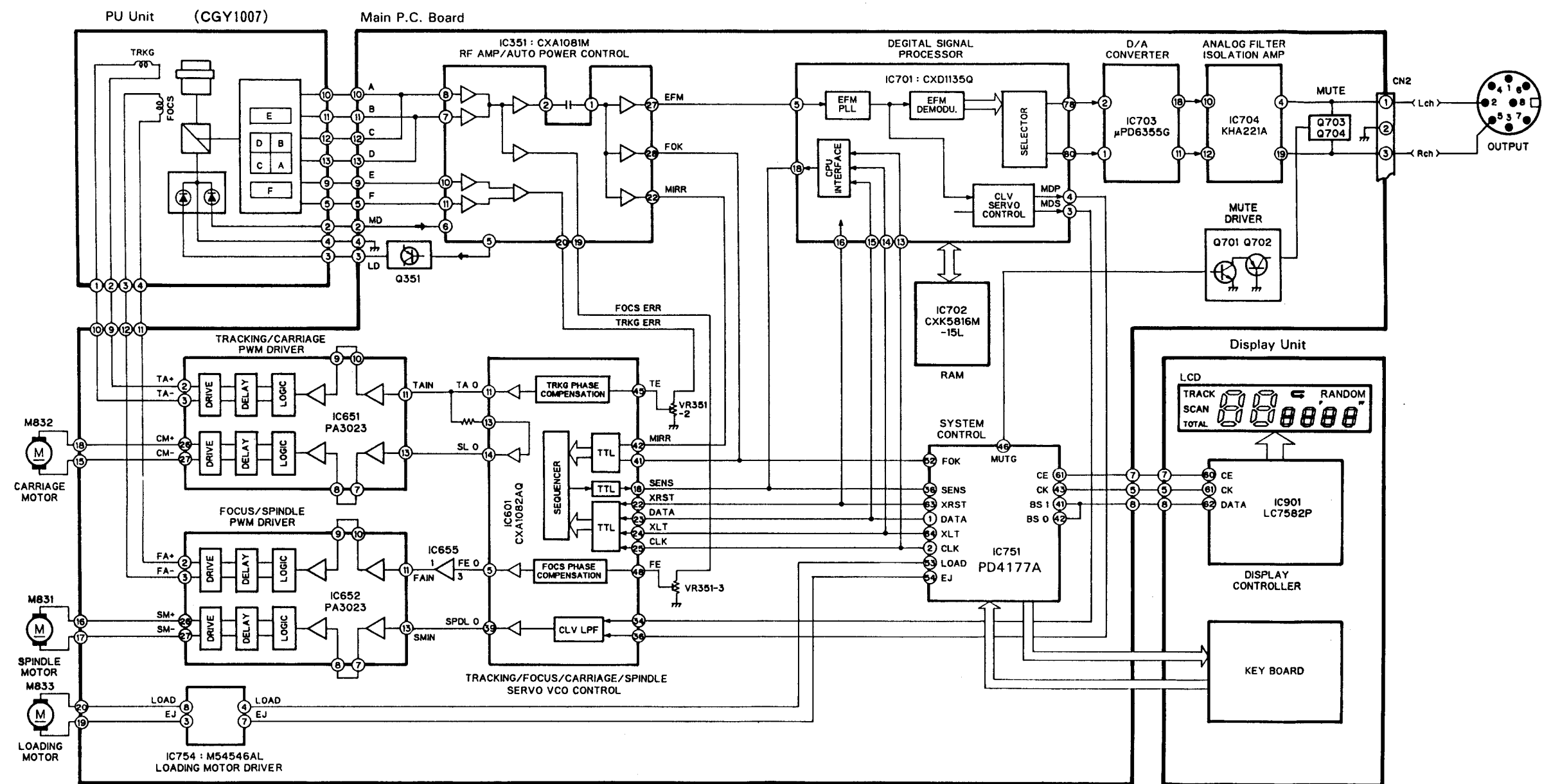


Fig. 14

7. ADJUSTMENT

1) Precautions

- CDX-3 uses a single power supply (+5V) of the regulator. The signal reference potential, therefore, is connected to pin no. 14 (approx. 2.5V) of IC351 (CXA1081M) instead of GND. (VC at test point)

If VC and GND are connected to each other by mistake during adjustments, not only will it be impossible to measure the potential correctly, but the servo will malfunction and a severe shock will be applied to the pick-up. To avoid this, take special note of the following.

Do not connect the negative probe of the measuring equipment to VC and GND together. It is especially important not to connect the channel 1 negative probe of the oscilloscope to VC with the channel 2 negative probe connected to GND.

And since the frame of the measuring instruments is usually at the same potential as the negative probe, change the frame of the measuring instrument to floating status.

If by accident VC comes in contact with GND, immediately switch the regulator or power OFF.

- Always make sure the regulator is OFF when connecting and disconnecting the various filters and wiring required for measurements.
- Before proceeding to further adjustments and measurements after switching regulator ON, let the player run for about one minute to allow the circuits to stabilize.

- Since the protective systems in the unit's software are rendered inoperative in test mode, be very careful to avoid mechanical and/or electrical shocks to the system when making adjustments.

- Test mode starting procedure

1. Connect test point TMODE to GND.
2. Turn ACC ON.

- Test mode cancelation

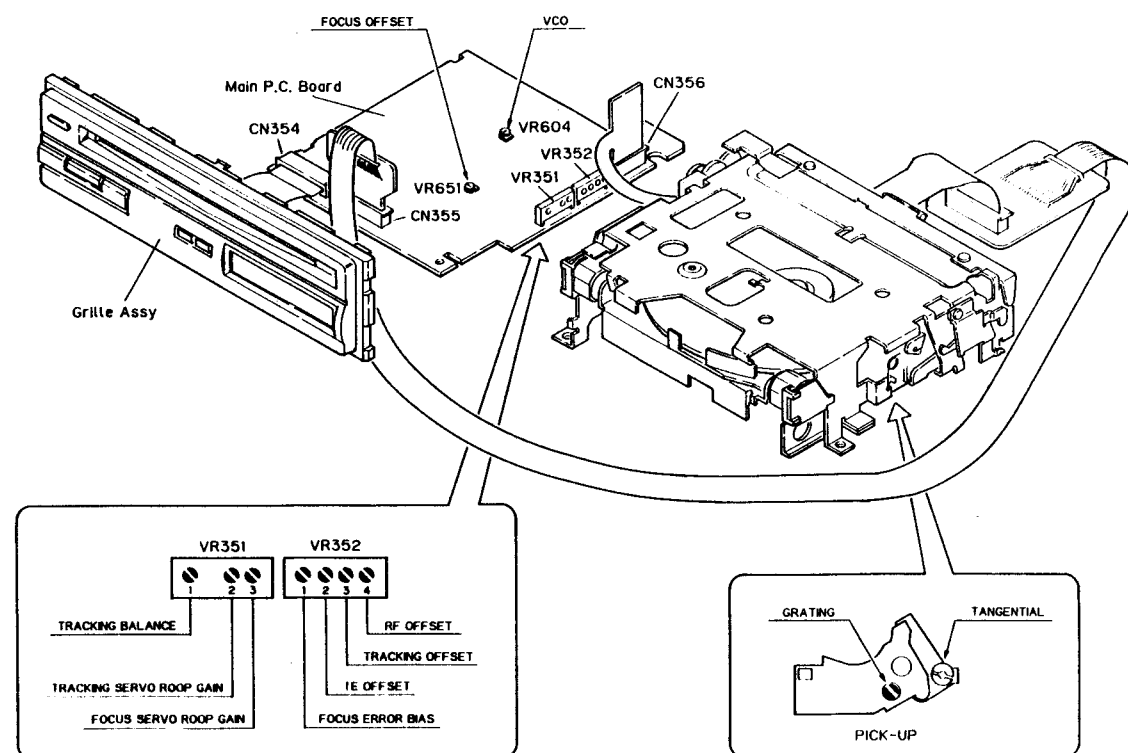
1. Disconnect test point TMODE from GND.
2. Turn ACC ON.

- Disc detection during loading and eject operations is performed by means of a photo transistor in this unit. Consequently, if the inside of the unit is exposed to a strong light source when the outer casing is removed for repairs or adjustment, the following malfunctions may occur.

- During PLAY, even if the eject button is pressed, the disc will not be ejected and the unit will remain in the PLAY mode.
- The unit will not load a disc.

When the unit malfunctions this way, either re-position the light source, move the unit or cover the photo transistor.

2) Adjustment Point



• Flow Chart

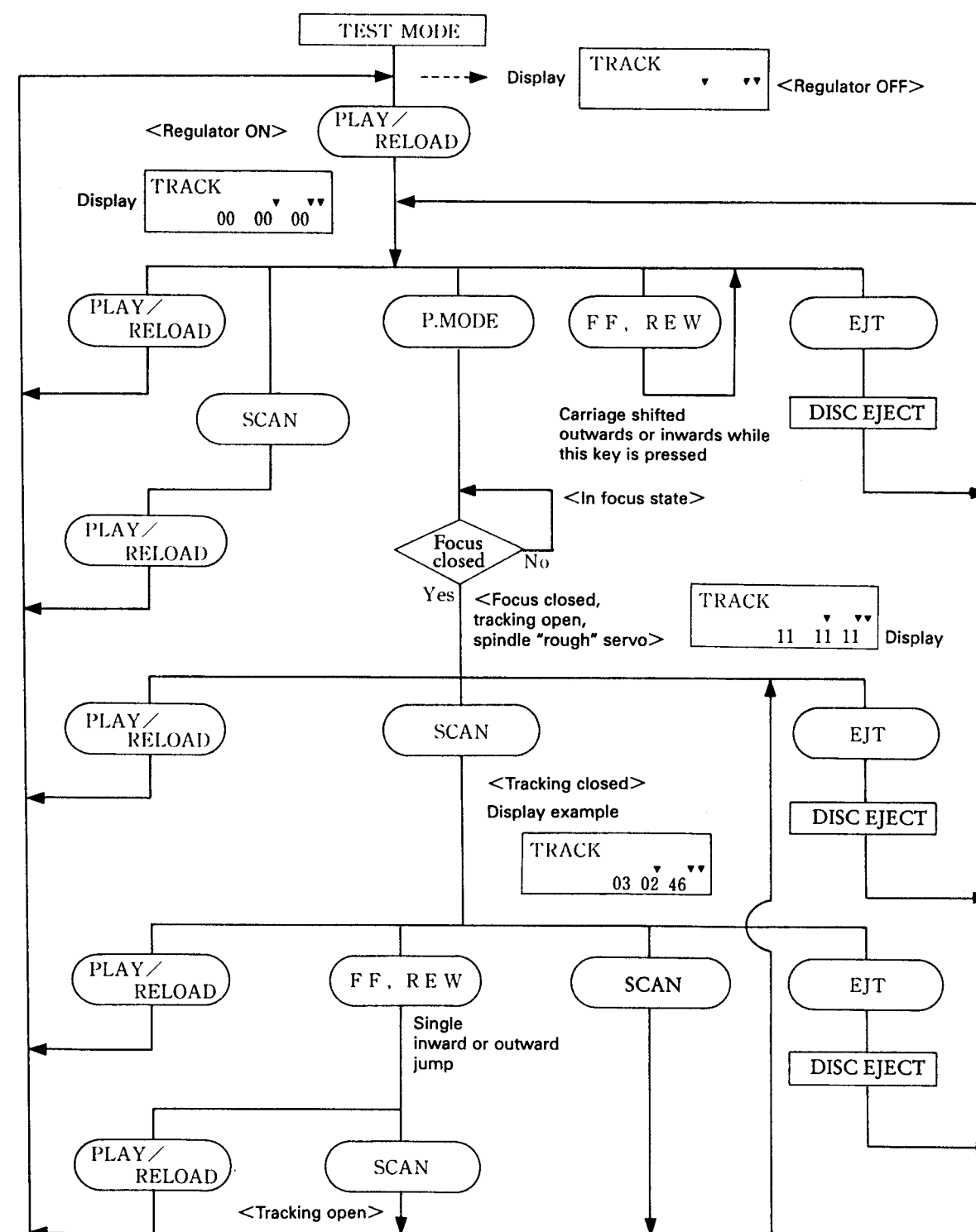


Fig. 15

● Test Point

Main P.C. Board

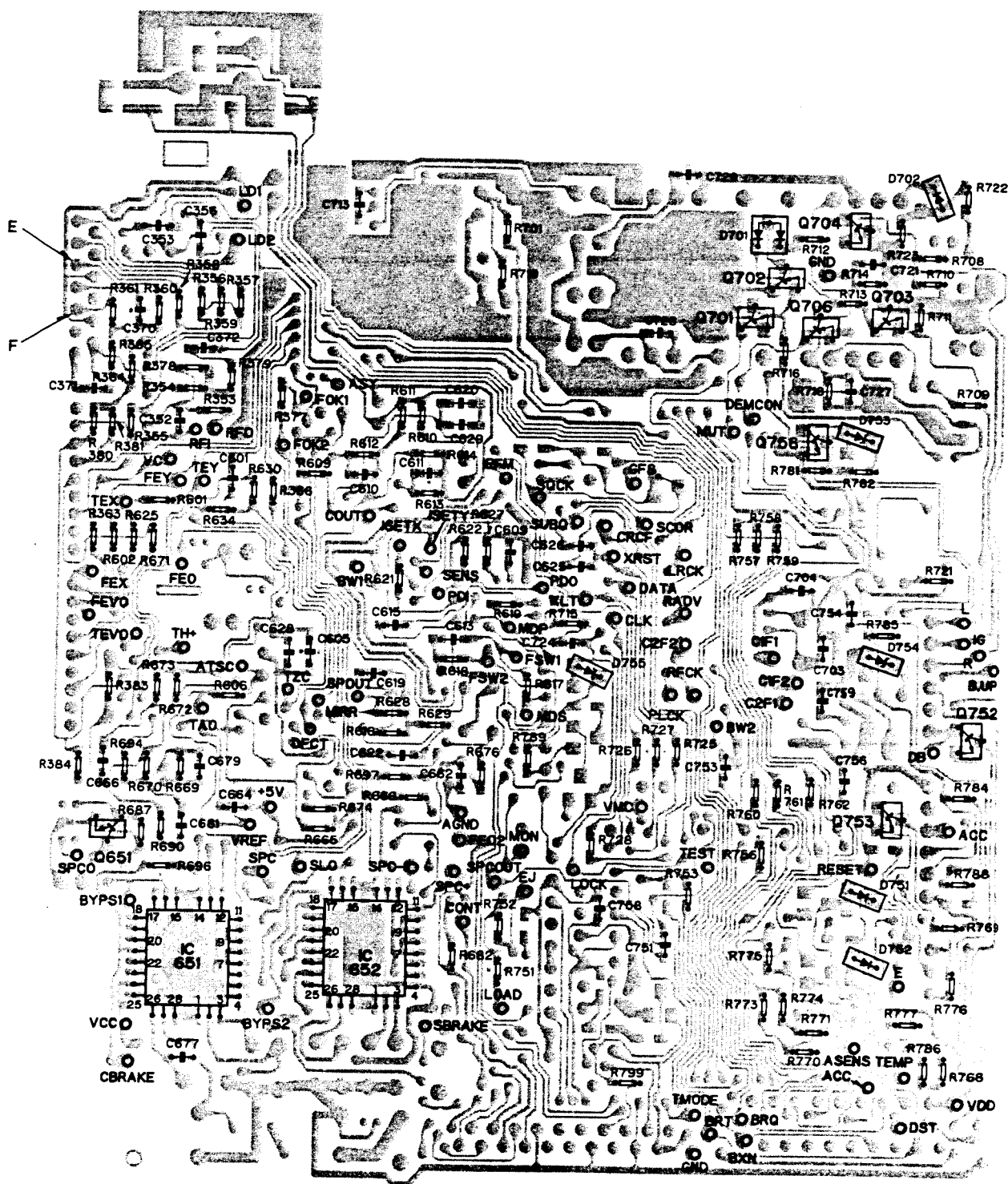


Fig. 16

7.1 Focus Offset Adjustment

● Purpose: To adjust the electrical offset of the focus amplifier to zero.

● Maladjustment symptoms: No focus closing

● Measuring equipment/
jigs

● Measuring point

● Test disc and setting

● Adjustment position

● Multi-meter or oscilloscope

● FEO2

● No disc, test mode

● VR651

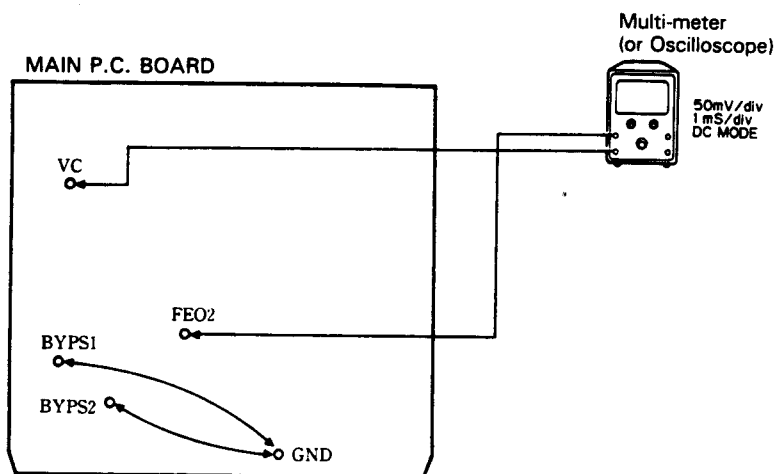


Fig. 17

Adjustment Procedure

1. Connect BYPS 1 and BYPS 2 to GND.
(Perform the following steps to stop the PWM drive.)
2. Switch regulator ON.
3. Using VR651, adjust the FEO2 DC voltage in reference to VC to a value of $0 \pm 25\text{mV}$.
4. Perform the following steps while BYPS 1 and BYPS 2 are connected to GND.

7.2 VCO Free Run Frequency Adjustment

- Purpose: To adjust the EFM decoder reference clock free- run frequency to a suitable value
- Maladjustment symptoms: Spindle lock not possible, distorted sound or no sound at all

- | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> ● Measuring equipment/ jigs ● Measuring point ● Test disc and setting ● Adjustment position | <ul style="list-style-type: none"> ● Frequency counter, extension cables ● Pin no.70 (PLCK) of IC701 (CXD1135Q) ● No disc • Test mode ● VR604 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

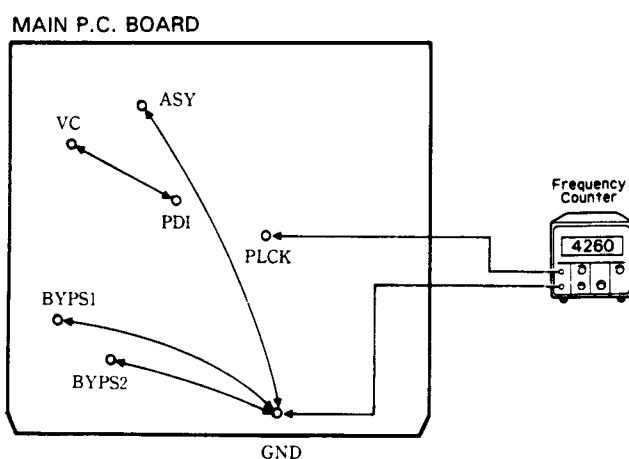


Fig. 18

Adjustment Procedure

1. Connect pin no.26 (TP ASY) of IC351 to GND.
Connect BYPS 1 and BYPS 2 to GND.
2. Connect pin no.1 (TP VC) of IC601 to pin no.28 (TP PDI).
3. Switch regulator ON while in test mode.
4. Connect the frequency counter to pin no.70 (TP PLCK) of IC701 (CXD1135Q).
5. Adjust VR604 to obtain a frequency of $4.26 \pm 0.005\text{MHz}$.
6. Switch regulator OFF.
7. Disconnect the leads connecting TP VC to TP PDI, and TP ASY to GND.

Note: Connect TP VC and TP PDI with leads kept as short as possible.

Note: Connect the frequency counter ground to TP GND as shown in the figure.

7.3 RF Offset Adjustment

- Purpose: To adjust the RF amplifier offset to a suitable value
- Maladjustment symptoms: Focus closure fails readily

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> ● Measuring equipment/jigs ● Measuring point ● Test disc and setting ● Adjustment position | <ul style="list-style-type: none"> ● Oscilloscope ● RFO ● No disc ● VR352-4 (RFO) ● Test mode |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|

MAIN P.C. BOARD

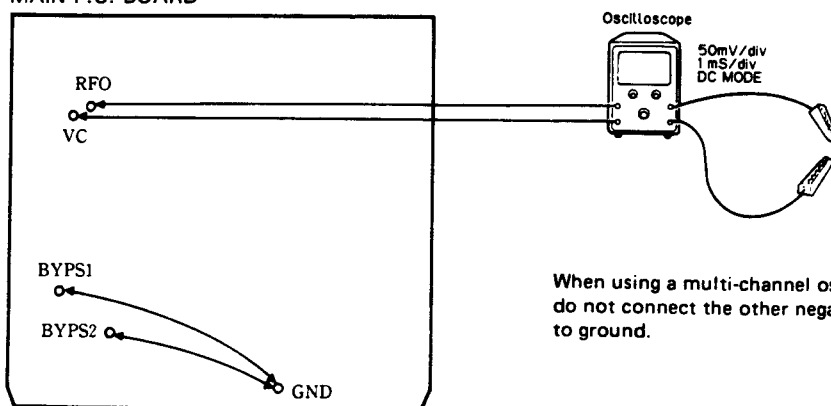


Fig. 19

Adjustment Procedure

1. Connect BYPS 1 and BYPS 2 to GND.
2. Switch regulator ON.
3. Using the oscilloscope, measure the RFO DC voltage in reference to VC, and adjust VR352-4 (RFO) to obtain a reading of $+250 \pm 25\text{mV}$.

7.4 Tracking Offset Adjustment

- Purpose: To adjust the electrical offset of the tracking amplifier to zero
- Maladjustment symptoms: Search times too long, carriage run-away

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> ● Measuring equipment/
jigs ● Measuring point ● Test disc and setting ● Adjustment position | <ul style="list-style-type: none"> ● Oscilloscope ● TAO low-pass filter output ● No disc • Test mode ● VR352-3 (TO) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|

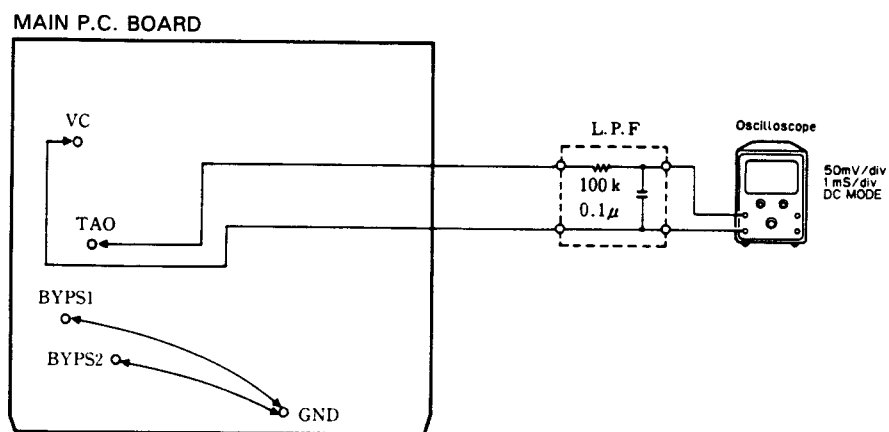


Fig. 20

Adjustment Procedure

1. Insert a low-pass filter between TAO and VC.
2. Check that BYPS 1 and BYPS 2 are connected to GND.
3. Switch regulator ON.
4. Using the oscilloscope, measure the TAO LPF output DC voltage in reference to VC, and adjust VR352-3 (TO) to obtain a reading of $0 \pm 25\text{mV}$.
The low-pass filter may be left in place for later adjustments.

7.5 TE Offset Adjustment - I

- Purpose: To adjust the electrical offset of the tracking servo to zero.
- Maladjustment symptoms: Search times too long, carriage run-away

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> ● Measuring equipment/
jigs ● Measuring point ● Test disc and setting ● Adjustment position | <ul style="list-style-type: none"> ● DC voltmeter ● TAO low-pass filter output ● No disc ● Test mode ● VR352-2 (TEO) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|

MAIN P.C. BOARD

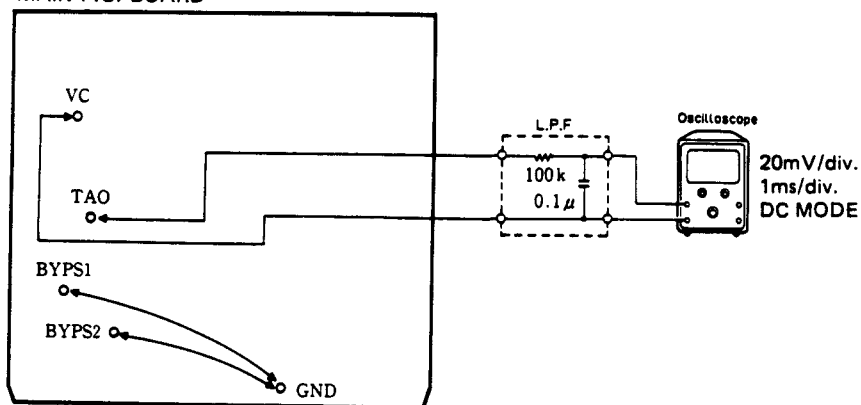


Fig. 21

Adjustment Procedure

1. Check that BYPS 1 and BYPS 2 are connected to GND.
2. Switch regulator ON while in test mode.
3. Press the **SCAN** key to close tracking.
4. Using VR352-2 (TEO), adjust the TAO LPF output DC voltage in reference to VC to a value of $0 \pm 10\text{mV}$.
5. Switch regulator OFF.

7.6 Tracking Balance Adjustment - I

- Purpose: To adjust the tracking servo offset to zero.
- Maladjustment symptoms: Search times too long, poor playability, carriage run-away

- | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> ● Measuring equipment/ jigs ● Measuring point ● Test disc and setting ● Adjustment position | <ul style="list-style-type: none"> ● Oscilloscope ● TEY (Tracking error signal), low-pass filter output ● SONY TYPE 4 (or TYPE 3) • Test mode ● VR351-1 (T. BAL) |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

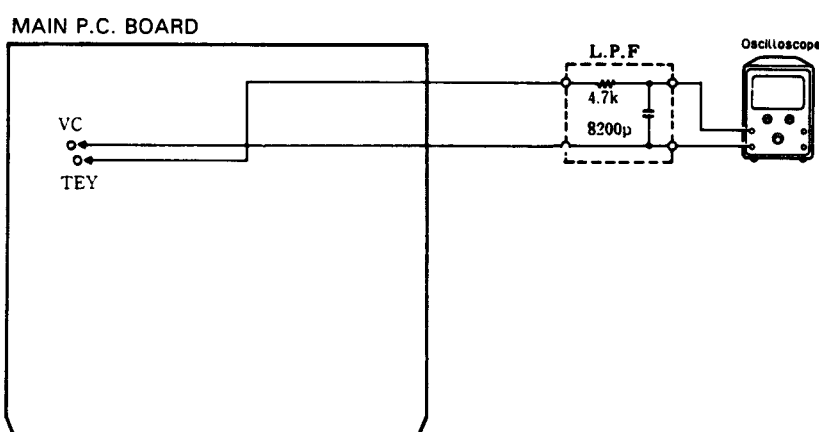
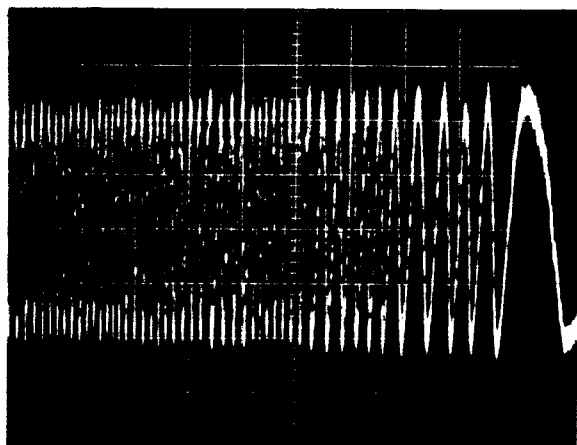


Fig. 22

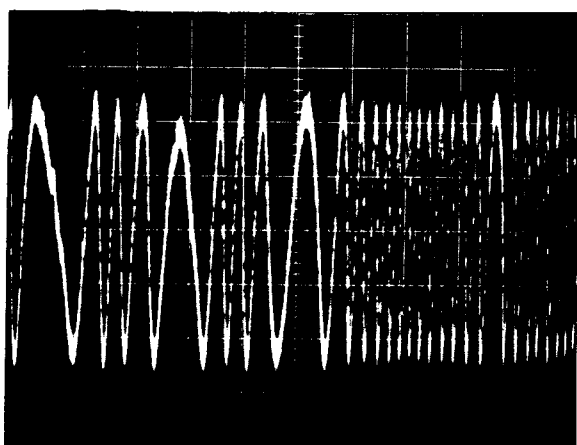
Adjustment Procedure

1. After checking that regulator is OFF, connect the low-pass filter as shown in the diagram.
2. Disconnect BYPS 1 and BYPS 2 from ground.
3. Load the test disc (SONY TYPE 4). Switch regulator ON.
4. Using the **FF** or **REW** key, move the pick-up to about the center of the signal surface.
5. Press the **P.MODE** key to close focus.
6. Using an oscilloscope, observe the TEY signal in respect to VC. Then adjust VR351-1 (T.BAL) to set the positive and negative amplitudes to the same levels. (See Fig. 23-25)
7. Switch the power OFF.
The low-pass filter may be left in place for later adjustments.



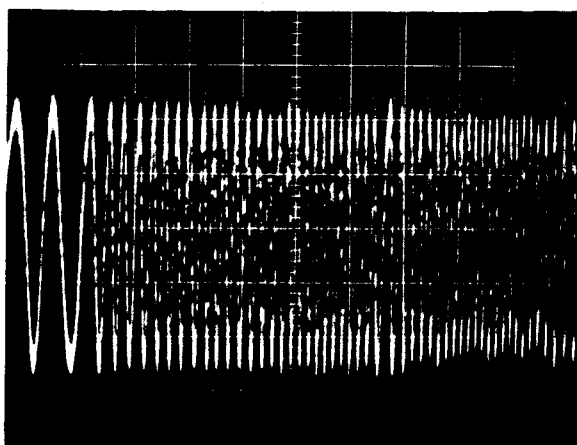
+ 5% NG

Fig. 23



± 0% OK

Fig. 24



- 5% NG

Fig. 25

10ms/div.
0.2V/div.
DC Mode

7.7 Tangential Skew Check

- **Purpose:** To check whether tangential skew has been misaligned or not when replacing the pick-up unit.
- **Maladjustment symptoms:** No disc playback; track jumping

- | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> ● Measuring equipment/ jigs ● Measuring point ● Test disc and setting ● Adjustment position | <ul style="list-style-type: none"> ● Oscilloscope, extension connectors, screwdriver ● RFO ● SONY TYPE 4 (or TYPE 3) • Normal mode ● Pick-up tangential adjustment screw |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

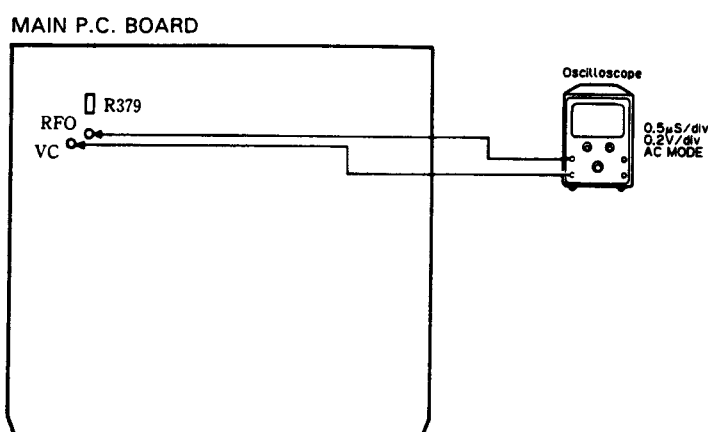
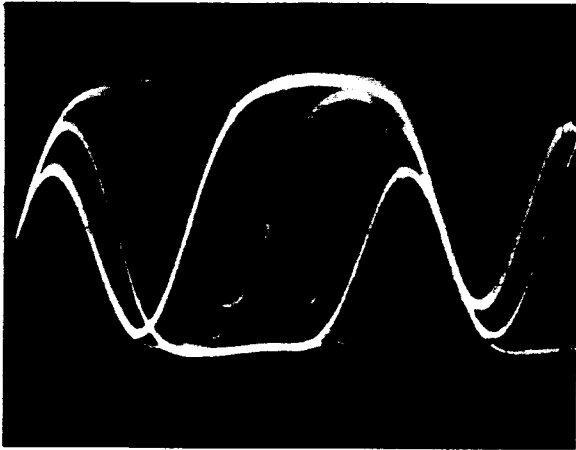


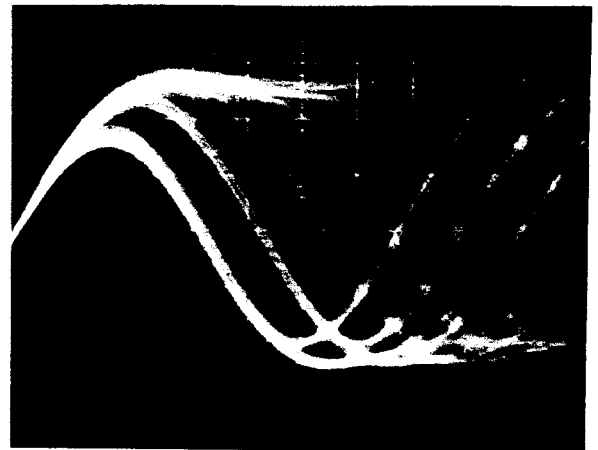
Fig. 26

Adjustment Procedure (with R379 removed)

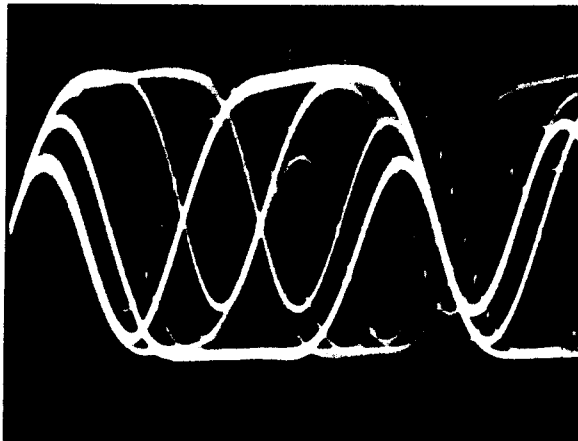
1. Remove R379 (but reconnect after completing adjustment).
2. Play tune TNO 7 in normal mode. (TYPE 3: TNO 23)
3. Check that the valley at the 11T section of the RF waveform is flat.
4. If out of adjustment, readjust to obtain a flat RF waveform. (See Fig. 27-32) Take care not to knock the pick-up with the screwdriver at this stage. (This kind of accident can result in loss of focus.)
5. Switch the power OFF and reconnect R379.
6. Apply "screw-lock" to the tangential adjustment screw.
7. After adjusting tangential skew, also adjust the grating.
8. If tangential skew is seriously out of adjustment, carriage stopping and run-away tend to occur in normal mode. In this case,
 - a) Switch to test mode,
 - b) Shift the pick-up to signal surface center using **FF** or **REW** key.
 - c) Press the **P.MODE** key to close focus.
 - d) Press the **SCAN** key to close the tracking.
 - e) Observe RFO in respect to VC, and turn the tangential adjustment screw to obtain a flat waveform at the 11T section.
 - f) Repeat the adjustment resuming from step 2.



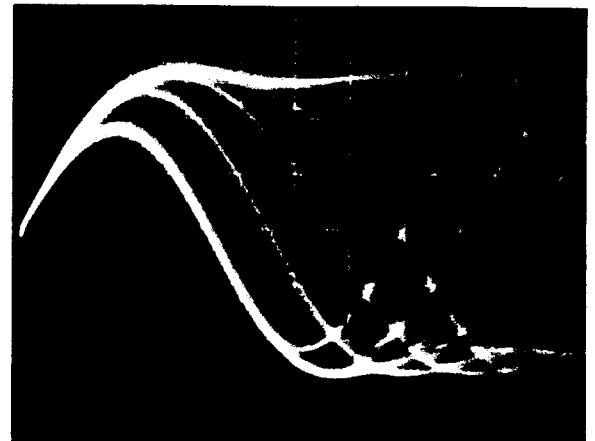
NG Fig. 27



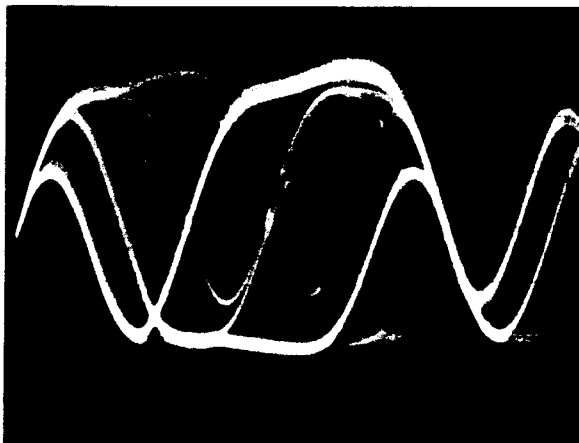
NG Fig. 28



OK Fig. 29

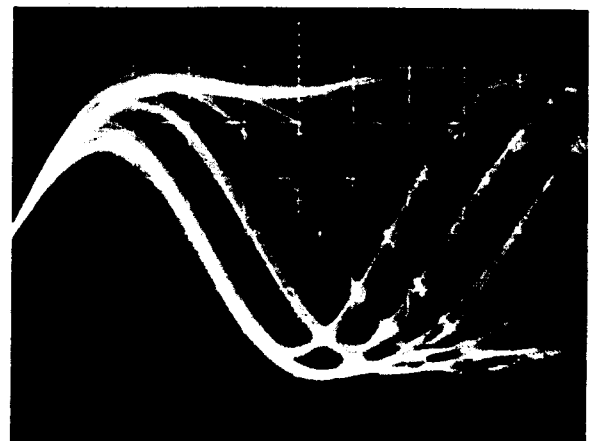


OK Fig. 30



NG Fig. 31

Play tune TNO 7 (TYPE4)

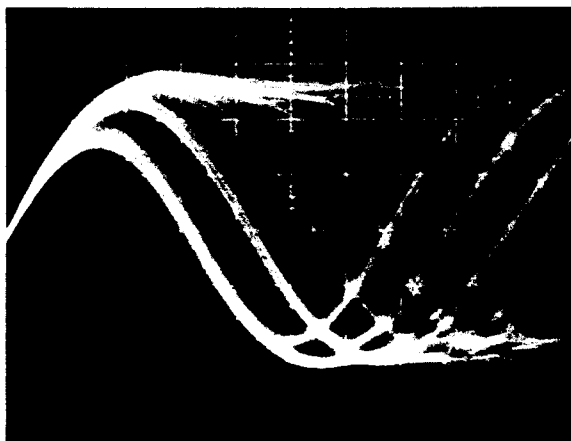


NG Fig. 32

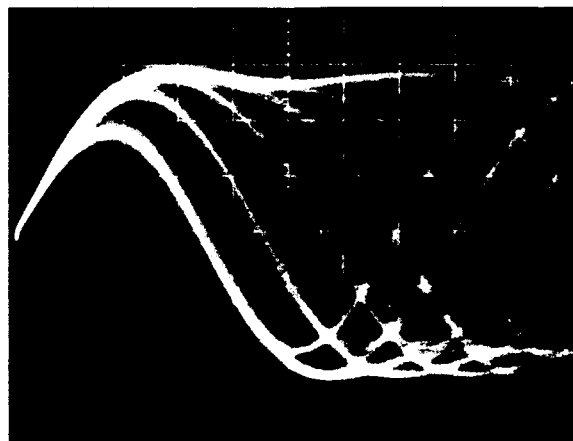
Play tune TNO 12 (TYPE4)

Adjustment Procedure (without R379 removed)

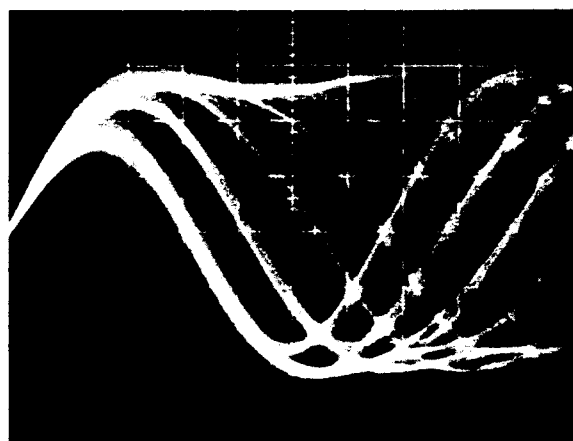
1. Play tune TNO 12 in normal mode. (TYPE 3: TNO 14)
2. Turn the tangential adjustment screw to obtain a good RF waveform eye pattern. Turn the adjustment screw both clockwise and counterclockwise to points where the eye pattern deteriorates, and take the midway point as the adjustment point. As a general guide, look for an overall clear waveform, and one of the diamond shapes in the eye pattern. The diamond shapes should appear in fine lines at the point of optimum adjustment. Take care not to knock the pick-up with the screwdriver at this stage. (This kind of accident can result in loss of focus.) (See Fig. 33-35)
3. Apply "screw-lock" to the tangential adjustment screw.
4. After adjusting tangential skew, also adjust the grating.



NG Fig. 33



OK Fig. 34



NG Fig. 35

7.8 Grating Adjustment

● Purpose: The grating may need adjustment in a replaced pick-up assembly.

● Maladjustment symptoms: No disc playback; track jumping

● Measuring equipment/
jigs

● Measuring point

● Test disc and setting

● Adjustment position

● Oscilloscope, clock driver, grating adjustment filter (bandpass filter),
AC millivoltmeter, two low-pass filters
● TEY, E LPF output, F LPF output
● SONY TYPE 4 (or TYPE 3) • Test mode
● Pick-up grating adjustment hole

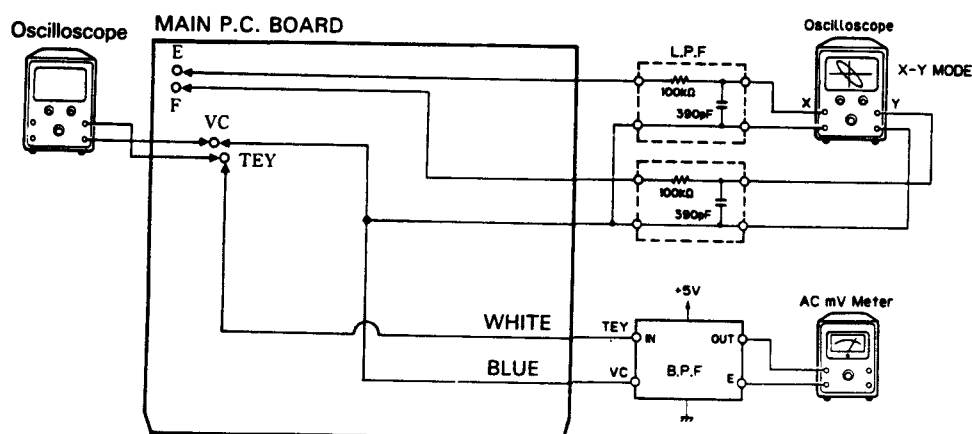


Fig. 36

Adjustment Procedure

1. Connect a low-pass filter (100k, 390p) to test points E, F, and VC as shown in the above diagram.
2. Switch regulator ON in test mode, and load a disc.
3. Press the **P.MODE** key to close focus.
4. Press the **SCAN** key to close tracking.
5. Press the **FF** or **REW** key, move the pick-up to about the center of the signal surface (tune TNO 6). (TYPE 3: TNO 7)
6. Press the **SCAN** key to open tracking.
7. While monitoring the TEY filter output by AC milli-voltmeter, turn the grating adjustment hole slowly. The AC voltage increases and decreases while turning the screw. Search for the minimum voltage level. (This corresponds to the position where the grating is on a track, and is referred to as the null point.)
8. Then while monitoring TEY by oscilloscope, turn the driver slowly clockwise from the null point (as seen from under the lens) until the first waveform peak amplitude is reached. (See Fig. 38-43)

9. With the E low-pass filter output connected to the X axis of the oscilloscope, and the F low-pass filter output connected to the Y axis, apply an input in AC mode and observe the Lissajous figure.
10. Using the driver, adjust the Lissajous figure to a single line (or as close as possible).
11. Switch regulator OFF and remove the filters.

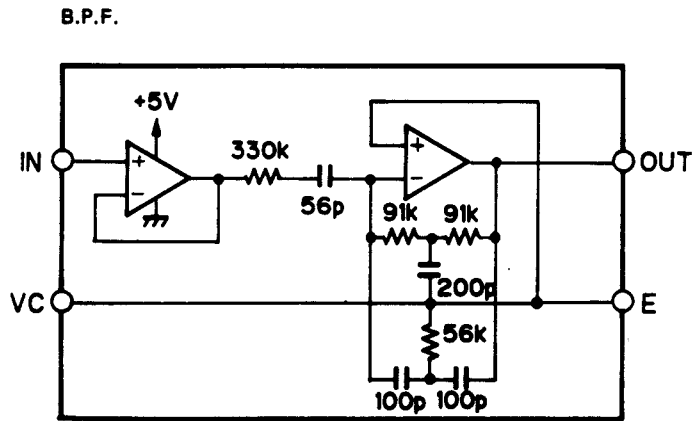


Fig. 37

TEY waveform 10ms/div, 500mV/div



Fig. 38

Null Point

Lissajous figure (AC input)
Horizontal axis E 20mV/div
Vertical axis F 20mV/div

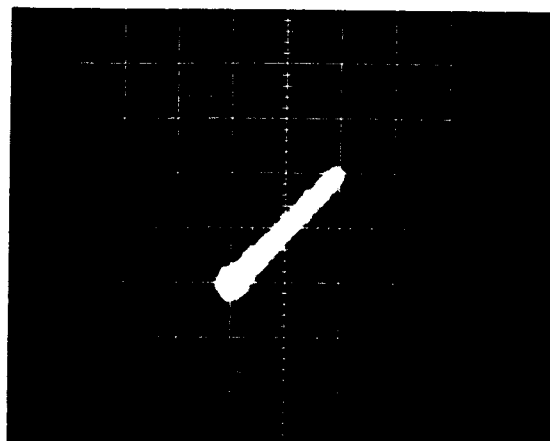


Fig. 39

"Rough" adjustment



Fig. 40

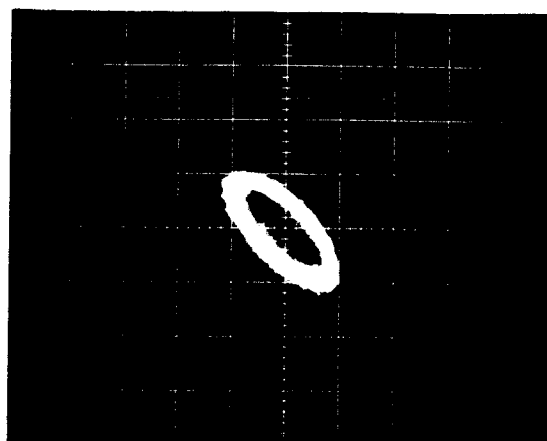


Fig. 41

Final adjustment

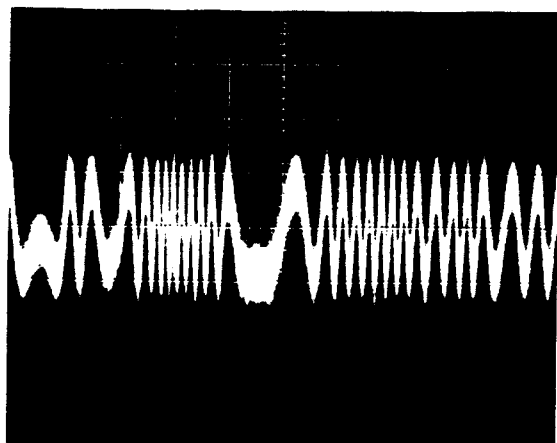


Fig. 42

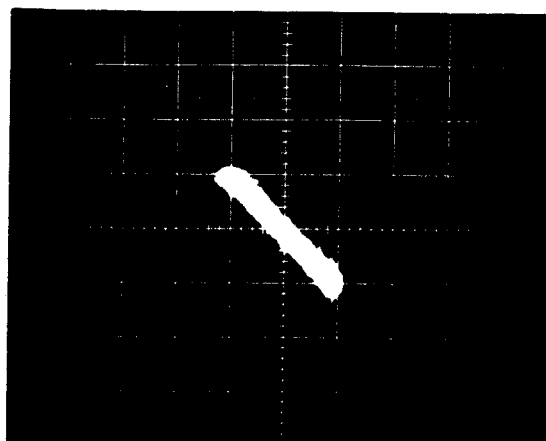


Fig. 43

7.9 Focus Bias Adjustment

- **Purpose:** To adjust the focus servo bias to an optimum value
- **Maladjustment symptoms:** Focus closing difficulty, poor playability

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> ● Measuring equipment/
jigs ● Measuring point ● Test disc and setting ● Adjustment position | <ul style="list-style-type: none"> ● Oscilloscope ● RFO ● SONY TYPE 4 (or TYPE 3) • Normal mode ● VR352-1 (FEB) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|

MAIN P.C. BOARD

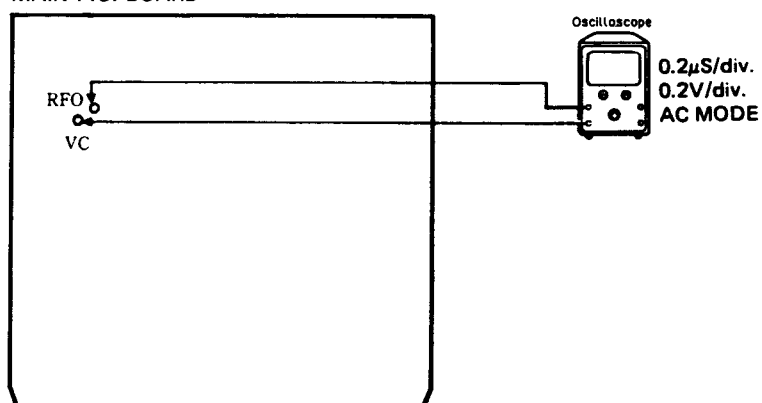


Fig. 44

Adjustment Procedure

1. Play tune TNO 12 in normal mode. (TYPE 3: TNO 14)
2. Observe RFO in respect to VC in the oscilloscope, and adjust VR352-1 (FEB) to obtain maximum RF and optimum eye pattern. (See Fig. 45 and 46)



OK

Fig. 45



0.2 μ s/div.
0.2V/div.
AC Mode

Before adjustment

Fig. 46

7.10 Focus Servo Loop Gain Adjustment

- **Purpose:** To adjust the focus servo loop gain to an optimum value
- **Maladjustment symptoms:** Poor playability, reduced resistance to vibration, focus closure fails readily

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> ● Measuring equipment/jigs ● Measuring point ● Test disc and setting ● Adjustment position | <ul style="list-style-type: none"> ● Oscillator, gain adjustment filter, dual meter milli-voltmeter ● FEX, FEY ● SONY TYPE 4 (or TYPE 3) • Normal mode ● VR351-3 (FG) |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

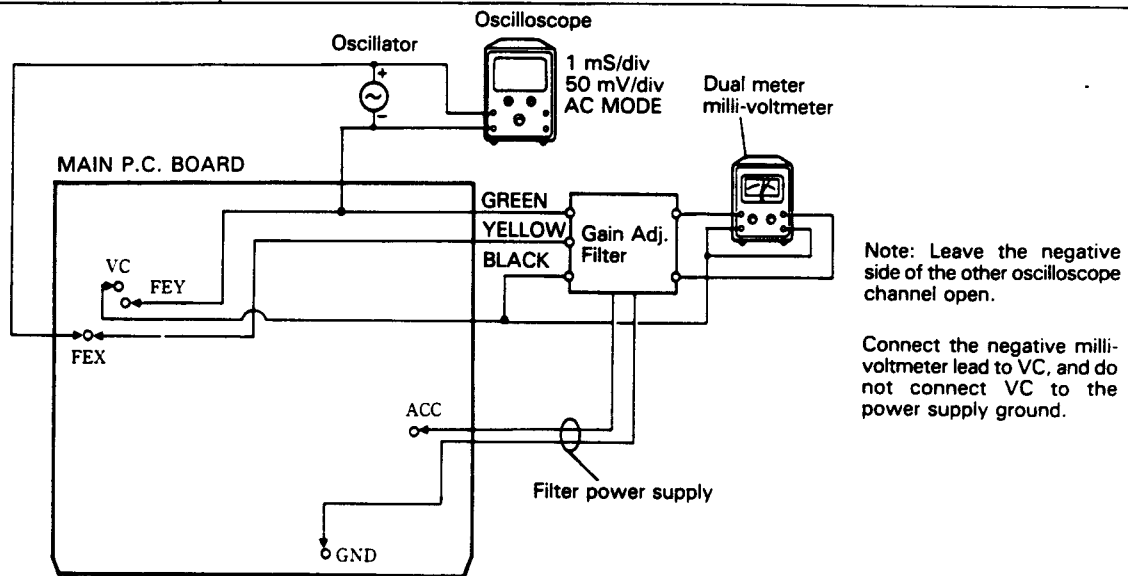


Fig. 47

Adjustment Procedure

1. After checking that the power is OFF, connect the gain adjustment filter and measuring equipment as shown in the above diagram.
2. Play tune TNO 12 in normal mode. (TYPE 3: TNO 14)
3. Set the oscillator to 1kHz, and observe the FEX/FEY output in the oscilloscope. Adjust the oscillator output to obtain a FEX/FEY output of 200mVp-p.
4. Adjust VR351-3 (FG) to obtain a milli-voltmeter difference of $0 \pm 0.5\text{dB}$.

7.11 Tracking Servo Loop Gain Adjustment

- Purpose: To adjust the tracking servo loop gain to an optimum value
- Maladjustment symptoms: Poor playability, reduced resistance to vibration

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> ● Measuring equipment/jigs ● Measuring point ● Test disc and setting ● Adjustment position | <ul style="list-style-type: none"> • Oscillator, gain adjustment filter, dual meter milli-voltmeter • TEX, TEY • SONY TYPE 4 (or TYPE 3) • Normal mode • VR351-2 (TG) |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

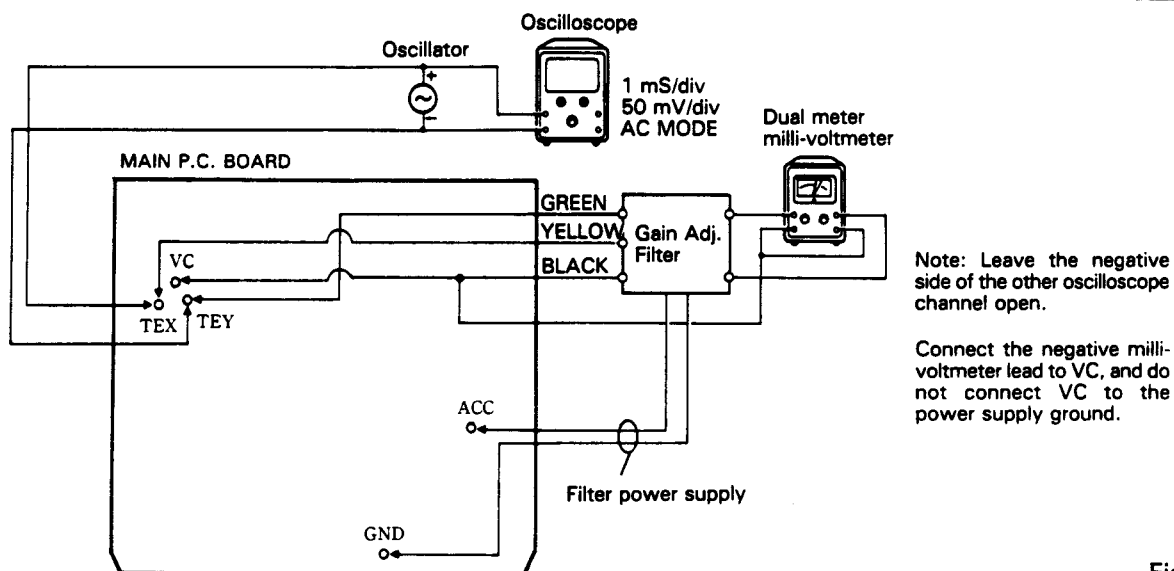


Fig. 48

Adjustment Procedure

1. After checking that the power is OFF, connect the gain adjustment filter and measuring equipment as shown in the above diagram.
2. Play tune TNO 12 in normal mode. (TYPE 3: TNO 14)
3. Set the oscillator to 1.4kHz, and observe the TEX/TEY output in the oscilloscope. Adjust the oscillator output to obtain a TEX/TEY output of 200mVp-p.
4. Adjust VR351-2 (TG) to obtain a milli-voltmeter difference of $0 \pm 0.5\text{dB}$.

7.12 TE Offset Adjustment - II

- Purpose: To adjust the electrical offset of the tracking servo to zero.
- Maladjustment symptoms: Search times too long, carriage run-away

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none">● Measuring equipment/
jigs● Measuring point● Test disc and setting● Adjustment position | <ul style="list-style-type: none">• DC voltmeter• TAO low-pass filter output• No disc • Test mode• VR352-2 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|

Adjustment Procedure

Same as for TE offset adjustment - I, but with the DC voltage of the TAO LPF output adjusted to $0 \pm 50\text{mV}$.

The purpose of this additional adjustment is to correct any deviations generated when carrying out the tracking balance and tracking servo loop gain adjustments after completing TE offset adjustment - I.

7.13 Tracking Balance Adjustment - II

- Purpose: To adjust the tracking servo offset to zero.
- Maladjustment symptoms: Search times too long, poor playability, carriage run-away

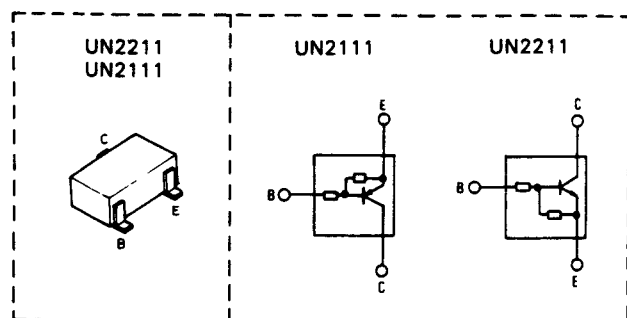
- | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none">● Measuring equipment/jigs● Measuring point● Test disc and setting● Adjustment position | <ul style="list-style-type: none">● Oscilloscope● TEY low-pass filter output● SONY TYPE 4 (or TYPE 3) • Test mode● VR351-1 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Adjustment Procedure

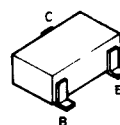
Steps 1 thru 5 same as tracking balance adjustment-I.

6. Check that the level difference between the positive and negative amplitudes of the TEY signal is within 5% (See Fig. 23-25). If greater than 5%, adjust with VR351-1.
7. If further adjustment was necessary in step 6, repeat TE offset adjustment - II.

● ICs and Transistors



2SD1048



2SB822F



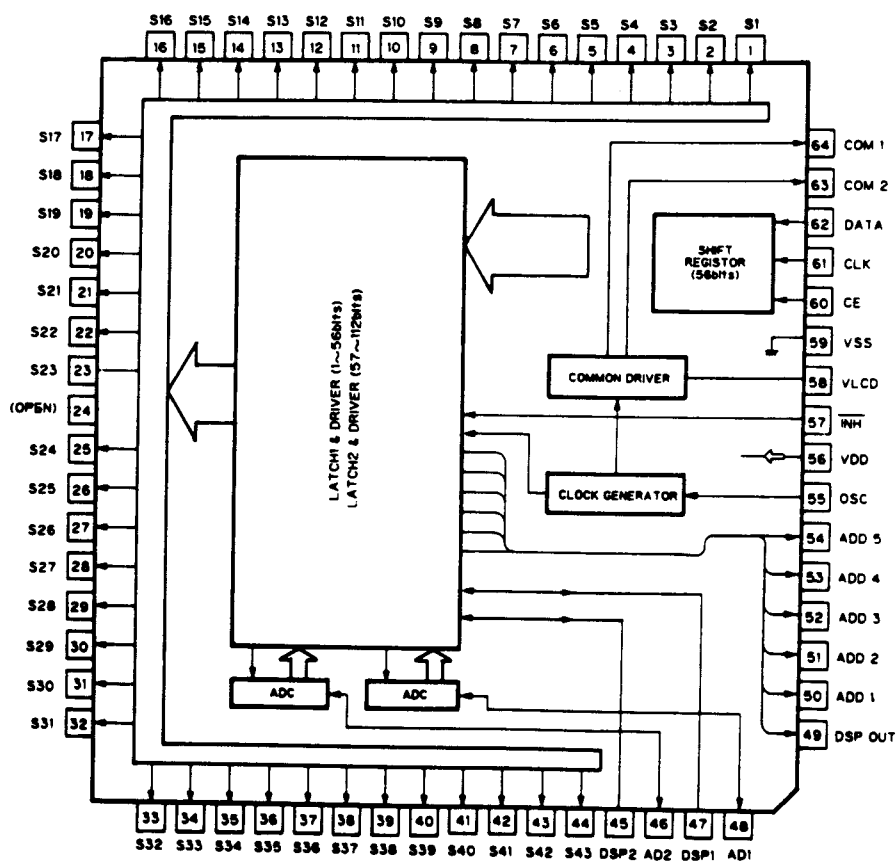
2SD1226M



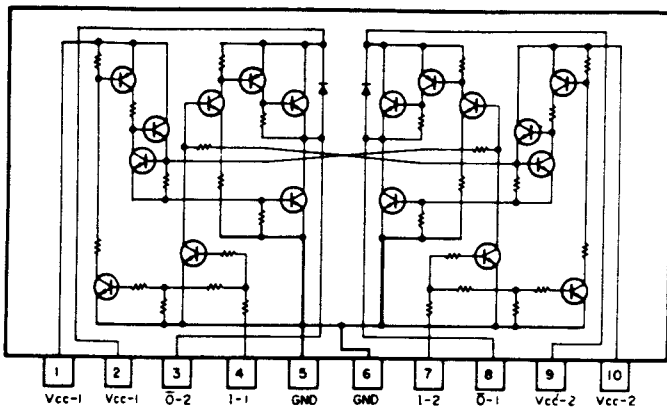
2SD1760F5



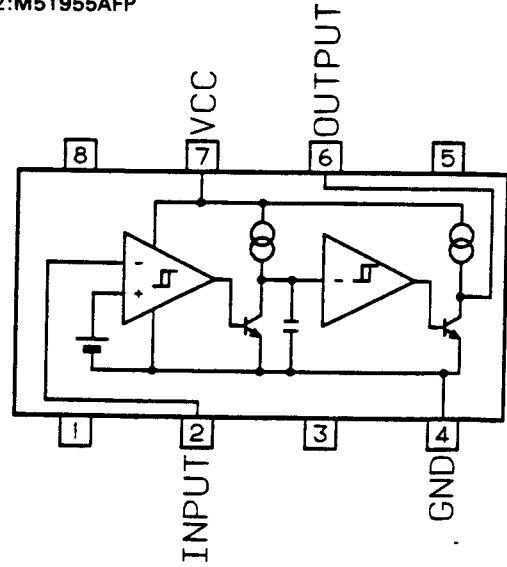
IC901:LC7582P



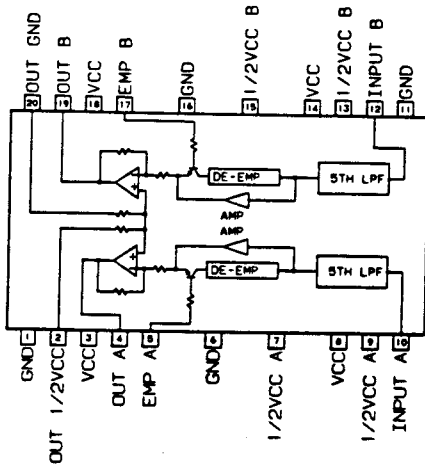
IC754:M54546L



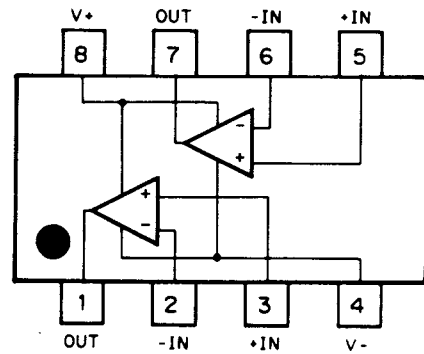
IC752:M51955AFP



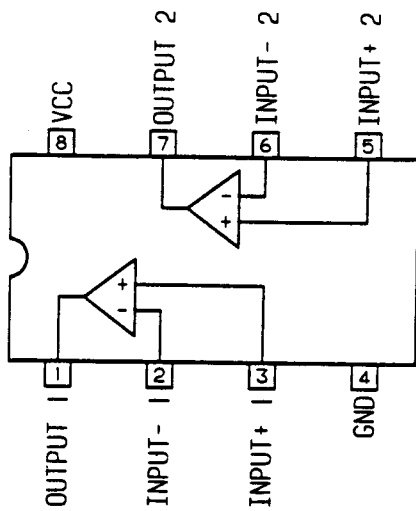
IC704:KHA221A



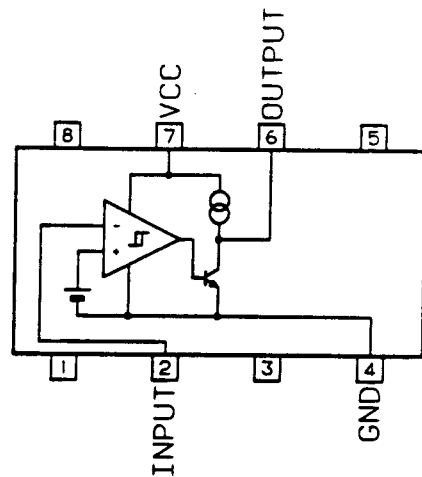
IC655,657,658:M5218FP



IC656:M5233FP



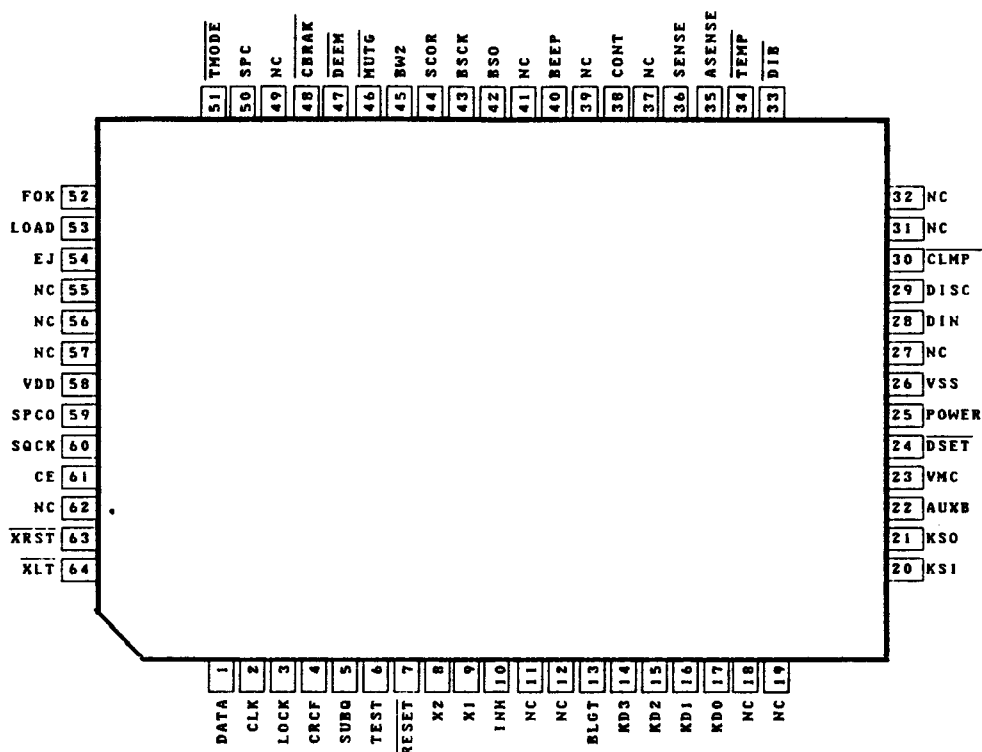
IC753:M51945AFP



*IC751:PD4177A

IC's marked by * are MOS type.

Be careful in handling them because they are very liable to be damaged by electrostatic induction.



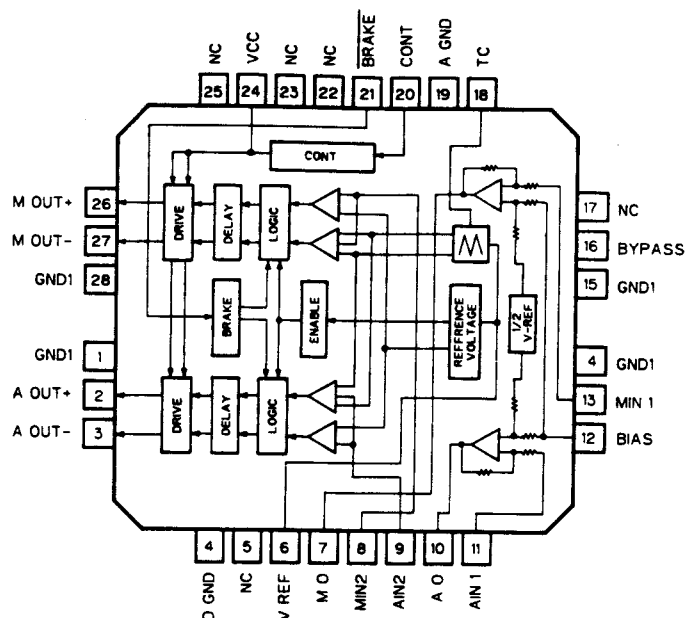
• Pin Functions (PD4177A)

Pin No.	Pin Name	I/O	Function and Operation
1	DATA	CMOS OUT	Serial data output.
2	CLK	CMOS OUT	Serial data clock output.
3	LOCK	CMOS IN	Spindle lock monitor. "H" = Lock
4	CRCF	CMOS IN	CRC check result input. "H" = CRC OK
5	SUBQ	CMOS IN	Sub-code data input.
6	TEST	CMOS IN	Test input.
7	RESET	CMOS IN	Reset input.
8	X2	CMOS OUT	Oscillator output.
9	X1	CMOS IN	Oscillator input.
10	INH	CMOS OUT	Display driver control "L" = Light OFF
13	BLGT	CMOS OUT	LCD back light control output. "H" = ON
14	KD3	INPUT	Key matrix input.
15	KD2	INPUT	
16	KD1	INPUT	
17	KD0	INPUT	
20	KS1	CMOS OUT	Key matrix output.
21	KS0	CMOS OUT	
22	AUXB	CMOS OUT	AUXB output.
23	VMC	CMOS OUT	Loading power supply control.
24	DSET	CMOS OUT	Disc set LED control.
25	POWER	CMOS IN	Regulator ON/OFF control. "H" = Regulator ON

	KD3, KD2	KD1	KD0
KS0	TR +	TR -	PLAY
KS1	P-MODE	SCAN	EJ/STOP

Pin No.	Pin Name	I/O	Function and Operation				
26	VSS						
28	DIN	CMOS IN	Door switch input.	“H” = Door open			
29	DISC	CMOS IN	Disc sensor input.	“H” = Disc loaded			
30	CLMP	CMOS IN	Disc clamped input.	“L” = Disc clamped			
33	DIB	INPUT	DIB input. Disable + B sense.				
34	TEMP	INPUT	High temperature detector.				
35	ASENSE	CMOS IN	ACC sense input.	“H” = ACC ON			
36	SENSE	CMOS IN	CD LSI internal status monitor input.				
38	CONT	CMOS OUT	PWM driver ON/OFF.	“H” = ON			
40	BEEP	CMOS OUT	Beep output. f = 4kHz				
42	BSO	CMOS OUT	Display driver serial data output.				
43	BSCK	CMOS OUT	Display driver serial clock output.				
44	SCOR	CMOS IN	Sub-code synchronization input.				
45	BW2	OUTPUT	Spindle motor output filter time constant selection output. High resistivity N channel open drain				
46	MUTG	OUTPUT	Muting output. High resistivity N channel open drain	“L” = Mute ON			
47	DEEM	OUTPUT	Emphasis selector output. High resistivity N channel open drain	“H” = Emphasis ON			
48	CBRAK	OUPUT	PWM driver brake control. High resistivity N channel open drain	“L” = Brake ON			
50	SPC	CMOS IN	Spindle motor rpm sensor circuit.	“L” = Low speed			
51	TMODE	OUTPUT	Test mode input.				
52	FOK	CMOS IN	Indication that focus is closed and RF input is active.				
53	LOAD	OUTPUT	Motor drive output.	LOAD	H	L	H
54	EJ		High resistivity N channel open drain	EJ	L	H	H
					Load	Eject	Stop
58	VDD	—					
59	SPCO	CMOS OUT	Spindle motor rpm sensor circuit ON/OFF. “H” = Brake				
60	SQCK	CMOS OUT	Sub-code clock.				
61	CE	CMOS OUT	Display driver select.				
63	XRST	CMOS OUT	CD LSI reset output .	“L” = Reset			
64	XLT	CMOS OUT	Serial data latch output.				

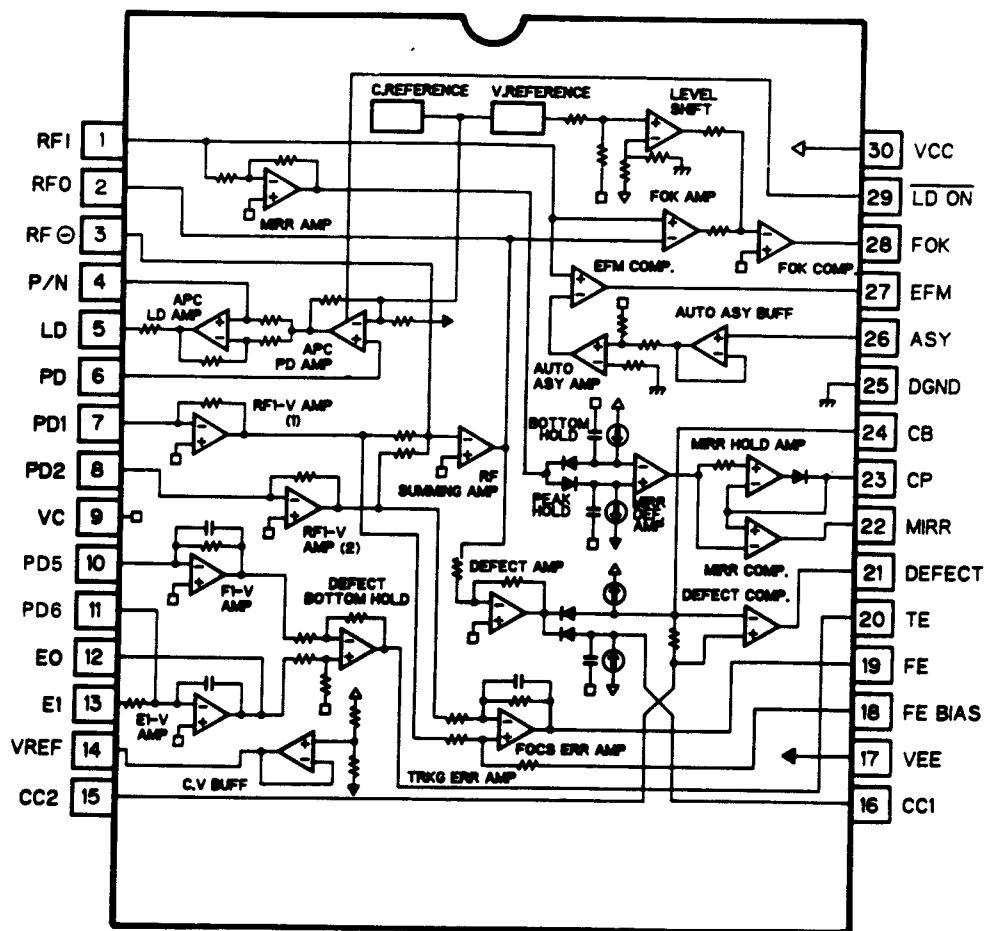
IC651,652:PA3023



Pin Functions (PA3023)

Pin	Pin Name	I/O	Function and Operation
1	GND1	—	Sub GND.
2	AOUT +	Output	Positive actuator drive output.
3	AOUT -	Output	Negative actuator drive output.
4	DGND	—	Power stage GND.
5	NC	—	
6	Vref	—	IC stabilizing reference voltage output.
7	MO	Output	Analog signal output for motor.
8	MIN2	Input	Analog signal input 2 for motor.
9	AIN2	Input	Analog signal input 2 for the actuator.
10	AO	Output	Analog signal output for the actuator.
11	AIN1	Input	Analog signal input 1 for the actuator.
12	BIAS	—	External bias input pin.
13	MIN1	Input	Analog signal input 1 for the motor.
14	GND1	—	Sub GND.
15	GND1	—	Sub GND.
16	BYPASS	—	Ripple filter condenser connection pin for IC stabilizing reference voltage.
17	NC	—	
18	TC	—	Condenser connection pin for obtaining triangle waveform.
19	AGND	—	Small signal GND.
20	CONT	Input	Circuit operation/standby switch input. Active H
21	BRAKE	Input	Motor operation/non-operation switch input. Active L
22	NC	—	
23	NC	—	
24	Vcc	—	ACC power supply.
25	NC	—	
26	MOUT +	Output	Positive motor driver output.
27	MOUT -	Output	Negative motor driver output.
28	GND1	—	Sub GND

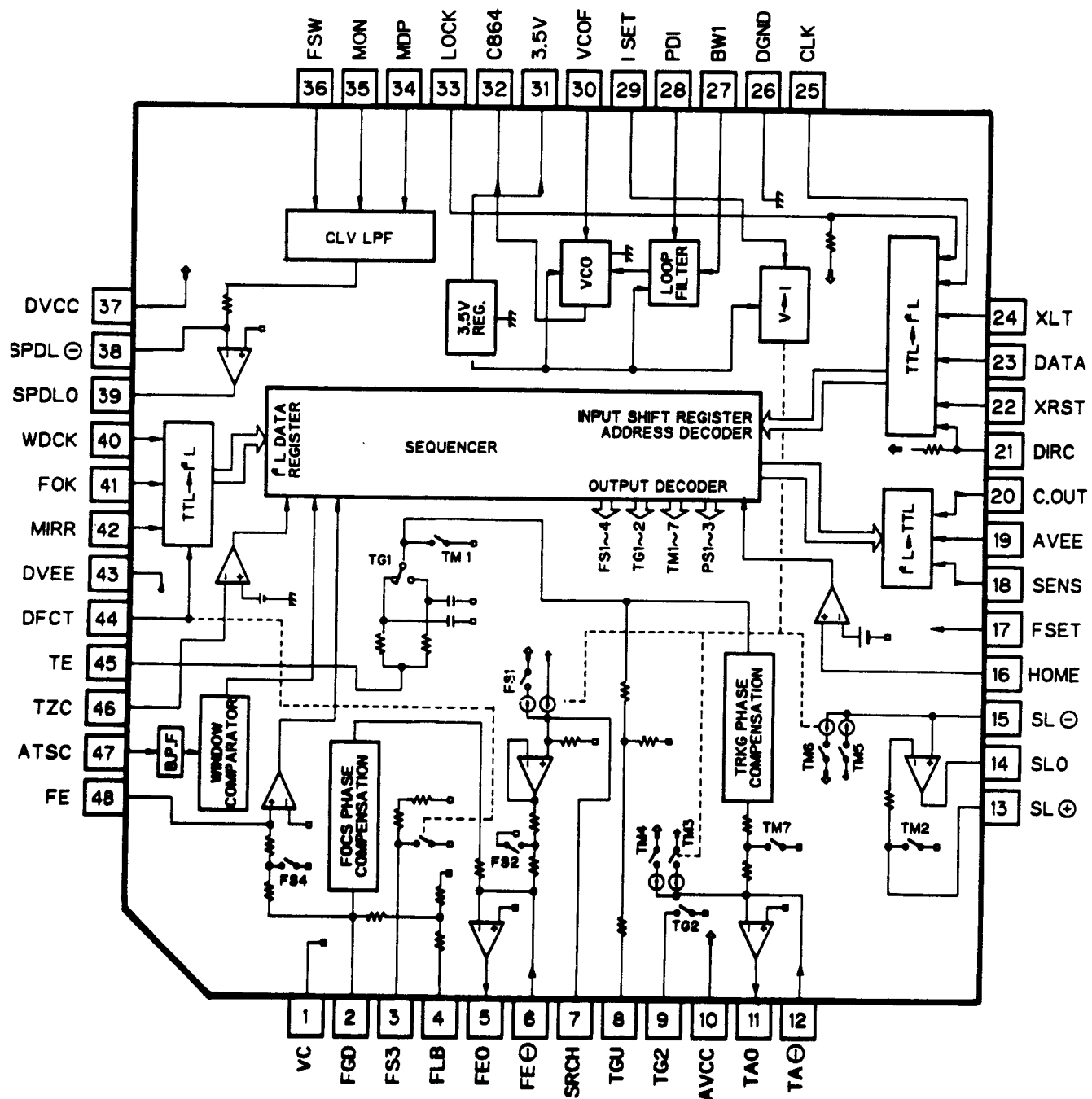
*IC351 : CXA1081M



● Pin Functions (CXA1081M)

Pin No.	Pin Name	I/O	Function and Operation
1	RFI	Input	Input of capacitance-coupled RF summing amplifier output
2	RFO	Output	RF summing amplifier output pin - eye pattern check point
3	RF -	Input	RF summing amplifier feedback input pin
4	P/N	Input	Laser diode P-sub/N-sub selector pin
5	LD	Output	APC LD amplifier output pin
6	PD	Input	APC PD amplifier input pin
7	PD1	Input	RF I-V amplifier (1) inverter input pin - connected to photodiode A + C pin for current input
8	PD2	Input	RF I-V amplifier (2) inverter input pin - connected to photodiode B + D pin for current input
9	VC		Connected to VR
10	F	Input	I-V amplifier inverter input pin - connected to photodiode for current input
11	E	Input	I-V amplifier inverter input pin - connected to photodiode for current input
12	EO	Output	E I-V amplifier output pin
13	EI	Input	E I-V amplifier feedback input pin for E I-V amplifier gain adjustment
14	VR	Output	$(V_{CC} + V_{EE})/2$ DC voltage output pin
15	CC2	Input	Input of capacitance-coupled DEFECT bottom hold output
16	CC1	Output	DEFECT bottom hold output pin
17	VEE		Ground connection
18	FE BIAS	Input	Focus error amplifier non-inverting bias pin Used in focus error amplifier CMR adjustment
19	FE	Output	Focus error amplifier output pin
20	TE	Output	Tracking error amplifier output pin
21	DEFECT	Output	DEFECT comparator output pin
22	MIRR	Output	MIRR comparator output pin
23	CP	Input	MIRR hold capacitor connector pin - MIRR comparator non-inverting input pin
24	CB	Input	DEFECT bottom hold capacitor connector pin
25	DGND		Ground connection
26	ASY	Input	Auto asymmetry control input pin
27	EFM	Output	EFM comparator output pin
28	FOK	Output	Focus OK comparator output pin
29	LDON	Input	Laser diode ON/OFF switching
30	VCC		Positive power supply pin

*IC601: CXA1082AQ

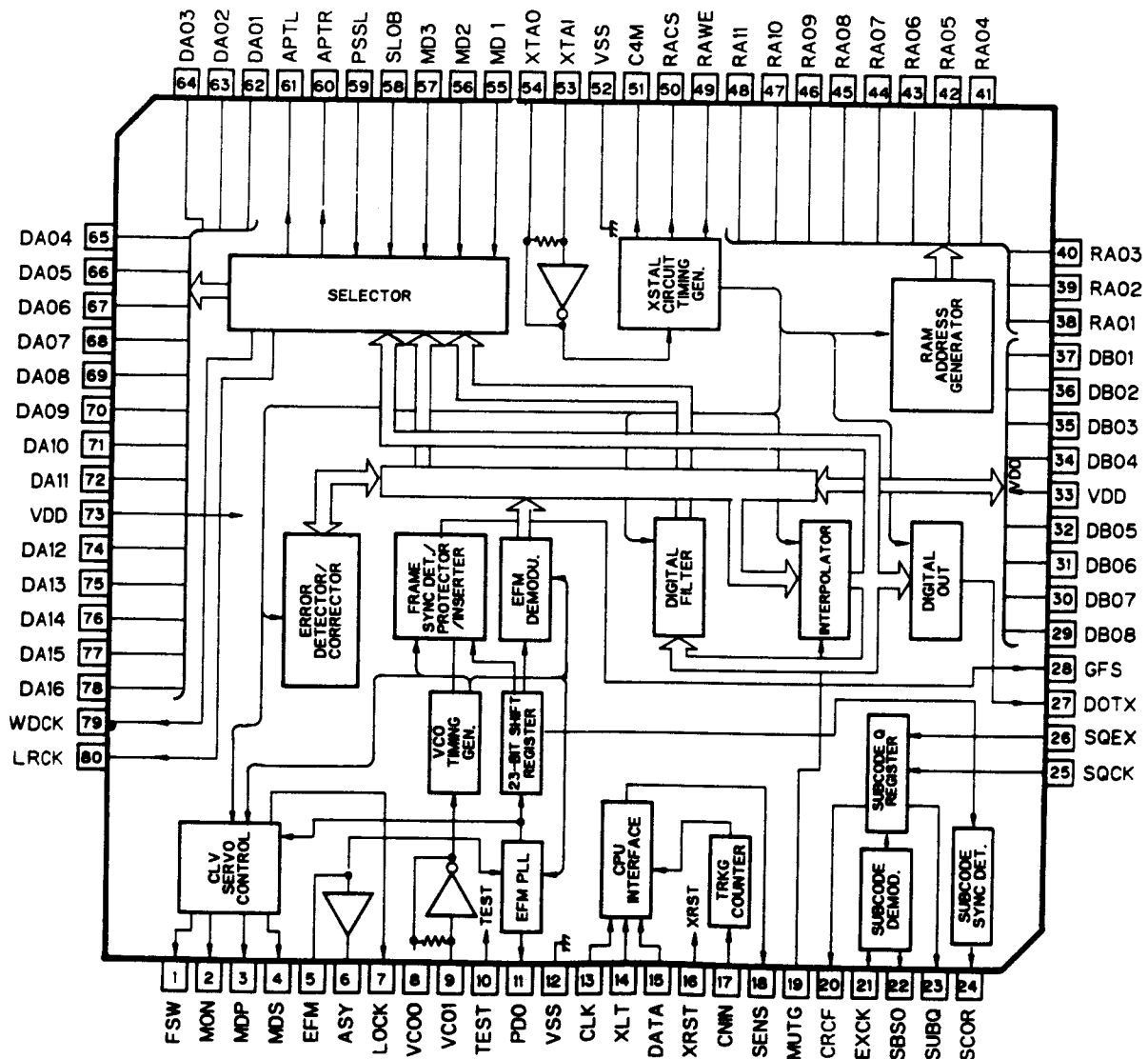


● Pin Functions (CXA1082AQ)

Pin No.	Pin Name	I/O	Function and Operation
1	VC		Servo reference voltage input pin
2	FGD		Connect to pin 3 to switch focus servo OFF when defect occurs
3	FS3		Internal DFCT switch closed when pin 44 is high
4	FLB		Focus servo low region boost external time constant pin
5	FEO	Output	Focus drive output - connect to low-end equalizer
6	FE -	Input	Focus amplifier inverter input pin
7	SRCH		Focus search waveform generation external time constant connector pin
8	TGU	Output	Tracking low-end equalizer connection output pin
9	TG2		Pin 7 discharge switch for starting focus search from lens center
10	AVCC		+ 5V connection
11	TAO	Output	Tracking drive output
12	TA -	Input	Tracking amplifier inverter input pin
13	SL +	Input	Sled amplifier non-inverting input pin
14	SLO	Output	Sled drive output
15	SL -	Input	Sled amplifier inverter input pin
16	HOME	Input	Sled home position detector switch input pin
17	FSET		Focus/tracking phase compensation peak and CLV low-pass filter f_0 setting pin
18	SENS	Output	Output of FZC, AS, TZC, SSTOP, and $\overline{\text{BUSY}}$ depending on command from CPU
19	AVEE		AGND connection
20	COUT	Output	Track counter signal output
21	DIRC		Not used
22	XRST	Input	Reset input pin - reset when "L"
23	DATA	Input	Serial data input from CPU
24	XLT	Input	Latch input from CPU
25	CLK	Input	Serial data transfer clock input from CPU
26	DGND		DGND connection
27	BW1		Loop filter external time constant pin
28	PDI	Input	Input of CXD1135 phase comparator output PDO
29	ISSET		Current which determines focus search, track jump, and sled kick height
30	VCOF		VCO free-running frequency more or less inversely
31	3.5V	Output	Proportional to resistance value between pins 30 and 31
32	C864	Output	8.64MHz VCO output pin
33	LOCK		Not used
34	MDP		Connect to MDP pin of CXD1135
35	MON		Connect to MON pin of CXD1135
36	FSW		CLV servo error signal low-pass filter external time constant pin
37	DVCC		+ 5V connection
38	SPDL -	Input	Spindle drive amplifier inverter input pin

Pin No.	Pin Name	I/O	Function and Operation
39	SPDLO	Output	Spindle drive output
40	WDCK	Input	Auto-sequence clock input 176.4kHz
41	FOK	Input	FOK signal input pin
42	MIRR	Input	Mirror signal input pin
43	DVEE		DGND connection
44	DFCT	Input	DEFECT signal input pin - defect countermeasure circuit activated when this input is high
45	TE	Input	Tracking error signal input pin
46	TZC	Input	Tracking zero-cross comparator input pin
47	ATSC	Input	Tracking lens offset detector window comparator input pin
48	FE	Input	Focus error signal input pin

*IC701: CXD1135Q

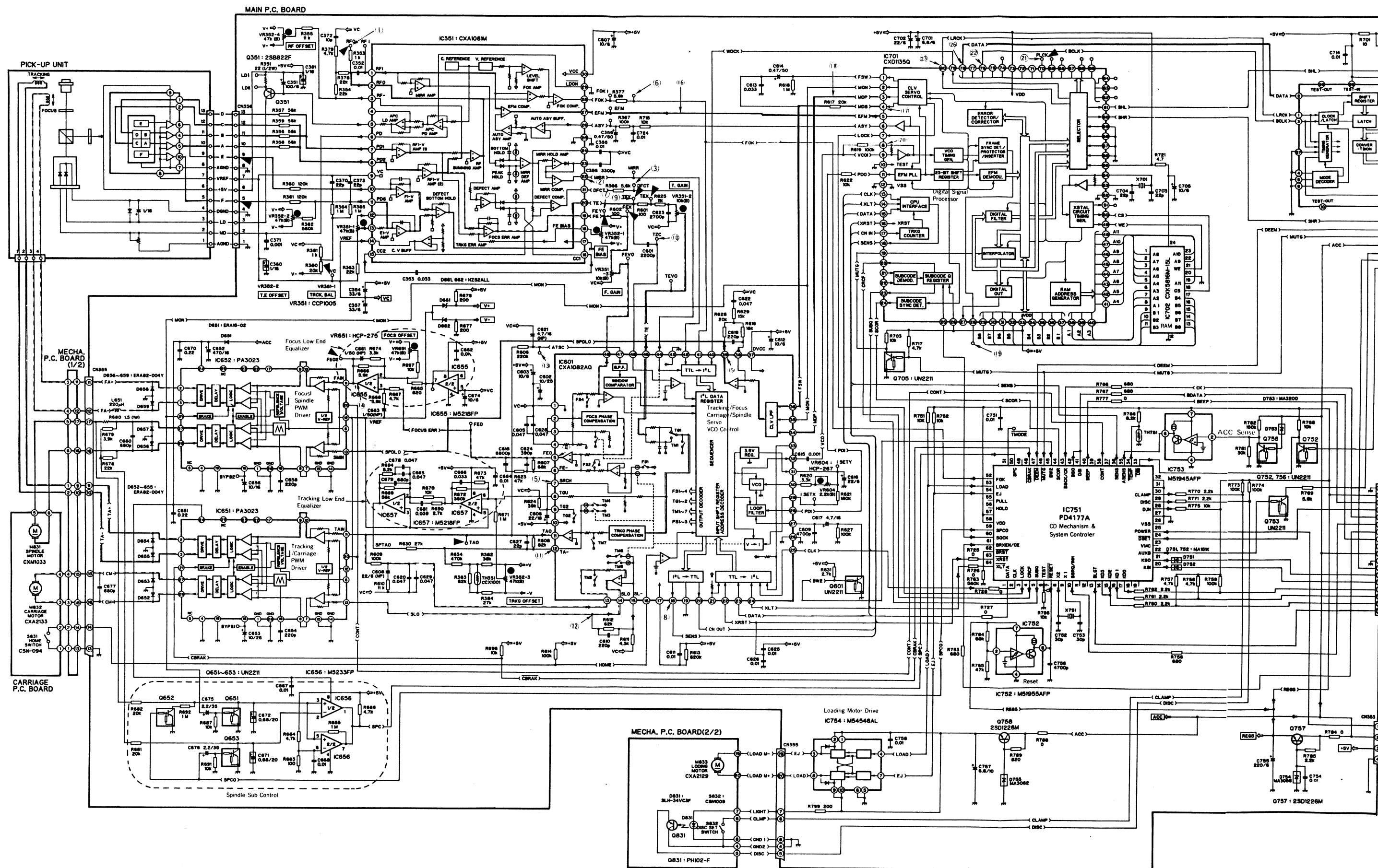


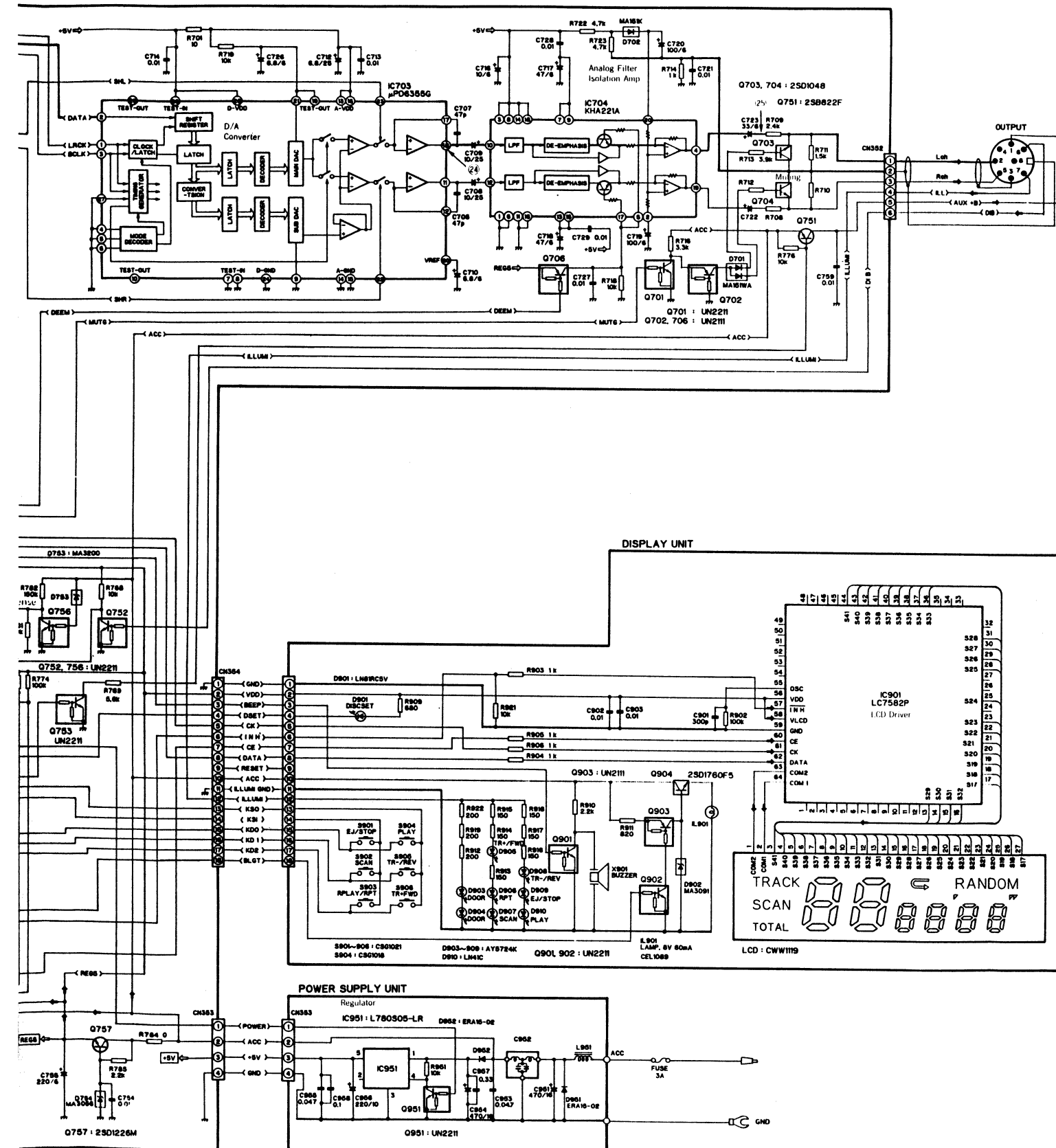
● Pin Functions (CXD1135Q)

Pin No.	Pin Name	I/O	Function and Operation
1	FSW	Output	Spindle motor output filter time constant selector output
2	MON	Output	Spindle motor ON/OFF control output
3	MDP	Output	Spindle motor drive output - "rough" control in CLV-S mode, and phase control in CLV-P mode
4	MDS	Output	Spindle motor drive output - speed control in CLV-P mode
5	EFM	Input	EFM signal input from RF amplifier
6	ASY	Output	EFM signal slice level control output
7	LOCK	Output	Sampling of GFS signal by WFCK/16 - "H" output if "H", "L" output if "L" detected eight times in succession
8	VCOO	Output	VCO output - $f = 8.6436\text{MHz}$ when EFM signal is locked
9	VCOI	Input	VCO input
10	TEST	Input	(0V)
11	PDO	Output	EFM signal and VCO/2 phase comparison output
12	V _{SS}	—	Ground (0V)
13	CLK	Input	Serial data transfer clock input from CPU - data latched by clock leading edge
14	XLT	Input	Latch input from CPU - 8-bit shift register data (serial data from CPU) is latched in each register.
15	DATA	Input	Serial data input from CPU
16	XRST	Input	System reset signal input - reset when "L"
17	CNIN	Input	Tracking pulse input
18	SENS	Output	Output of internal status according to address
19	MUTG	Input	Muting input - when ATTM of internal register A is "L", MUTG "L" denotes normal status, and "H" muted status
20	CRCF	Output	Sub-code Q CRC check result output
21	EXCK	Input	Clock input for sub-code serial output
22	SBSO	Output	Sub-code serial output
23	SUBQ	Output	Sub-code Q output
24	SCOR	Output	Sub-code synchronizing S0 + S1 output
25	SQCK	Input/Output	Sub-code Q read clock
26	SQEX	Input	SQCK selector input
27	DOTX	Output	Digital out output (WFCK output)
28	GFS	Output	Frame synchronizing lock status indicator output
29	DB08	Input/Output	External RAM data pin - DATA8 (MSB)
30	DB07	Input/Output	External RAM data pin - DATA7
31	DB06	Input/Output	External RAM data pin - DATA6
32	DB05	Input/Output	External RAM data pin - DATA5
33	V _{DD}	—	Power supply (+5V)
34	DB04	Input/Output	External RAM data pin - DATA4
35	DB03	Input/Output	External RAM data pin - DATA3

Pin No.	Pin Name	I/O	Function and Operation
36	DB02	Input/Output	External RAM data pin - DATA2
37	DB01	Input/Output	External RAM data pin - DATA1 (LSB)
38	RA01	Output	External RAM address output - ADDR01 (LSB)
39	RA02	Output	External RAM address output - ADDR02
40	RA03	Output	External RAM address output - ADDR03
41	RA04	Output	External RAM address output - ADDR04
42	RA05	Output	External RAM address output - ADDR05
43	RA06	Output	External RAM address output - ADDR06
44	RA07	Output	External RAM address output - ADDR07
45	RA08	Output	External RAM address output - ADDR08
46	RA09	Output	External RAM address output - ADDR09
47	RA10	Output	External RAM address output - ADDR10
48	RA11	Output	External RAM address output - ADDR11 (MSB)
49	RAWE	Output	External RAM write enable signal output (active "L")
50	RACS	Output	External RAM chip select signal output (active "L")
51	C4M	Output	X'tal frequency division output ($f = 4.2336\text{MHz}$)
52	V _{SS}	—	Ground (0V)
53	XTAI	Input	Crystal oscillator input ($f = 8.4672\text{MHz}$)
54	XTAO	Output	Crystal oscillator output ($f = 8.4672\text{MHz}$)
55	MD1	Input	Mode selector input 1
56	MD2	Input	Mode selector input 2
57	MD3	Input	Mode selector input 3
58	SLOB	Input	Audio data output code selector input - 2's complement output if "L", offset binary output if "H"
59	PSSL	Input	Audio data output mode selector input - serial output if "L", parallel output if "H"
60	APTR	Output	Aperture correction control output - "H" when right channel
61	APTL	Output	Aperture correction control output - "L" when left channel
62	DA01	Output	C1F1 output
63	DA02	Output	C1F2 output
64	DA03	Output	C2F1 output
65	DA04	Output	C2F2 output
66	DA05	Output	C2FL output
67	DA06	Output	C2PO output
68	DA07	Output	RFCK output
69	DA08	Output	WFCK output
70	DA09	Output	PLCK output
71	DA10	Output	UGFS output
72	DA11	Output	GTOP output

8. SCHEMATIC CIRCUIT DIAGRAM

<http://www.manualscenter.com>



— Signal Route
 - - - Focus Servo Line
 — Spindle Servo Line
 - - - Tracking Servo Line
 - - - Carriage Servo Line

NOTE :

- Indicates a chip resistor.
- Indicates a chip capacitor.
- Indicates a chip transistor.
- Indicates a chip diode.

SWITCHES

S831 : HOME SWITCH ON — OFF
 S832 : DISC SET SWITCH ON — OFF
 The underlined indicates the switch position.

• Serial No.00001 — 00500

POWER SUPPLY UNIT

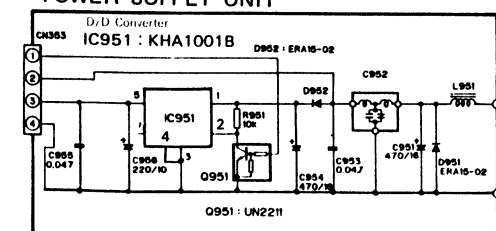


Fig. 49

9. CONNECTION DIAGRAM

<http://www.manualscenter.com>

MAIN P.C. BOARD

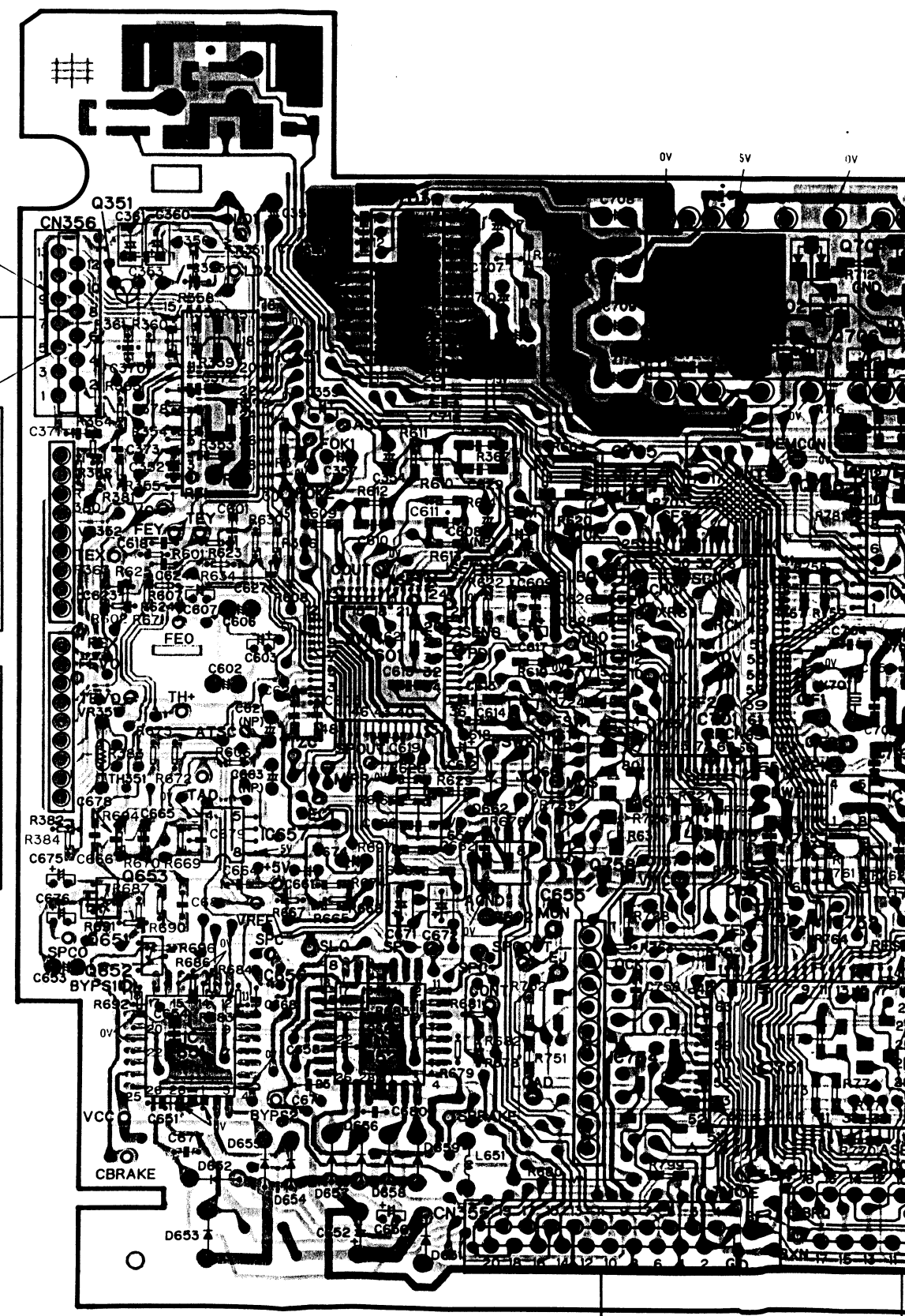
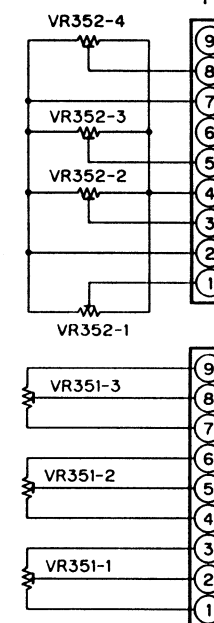
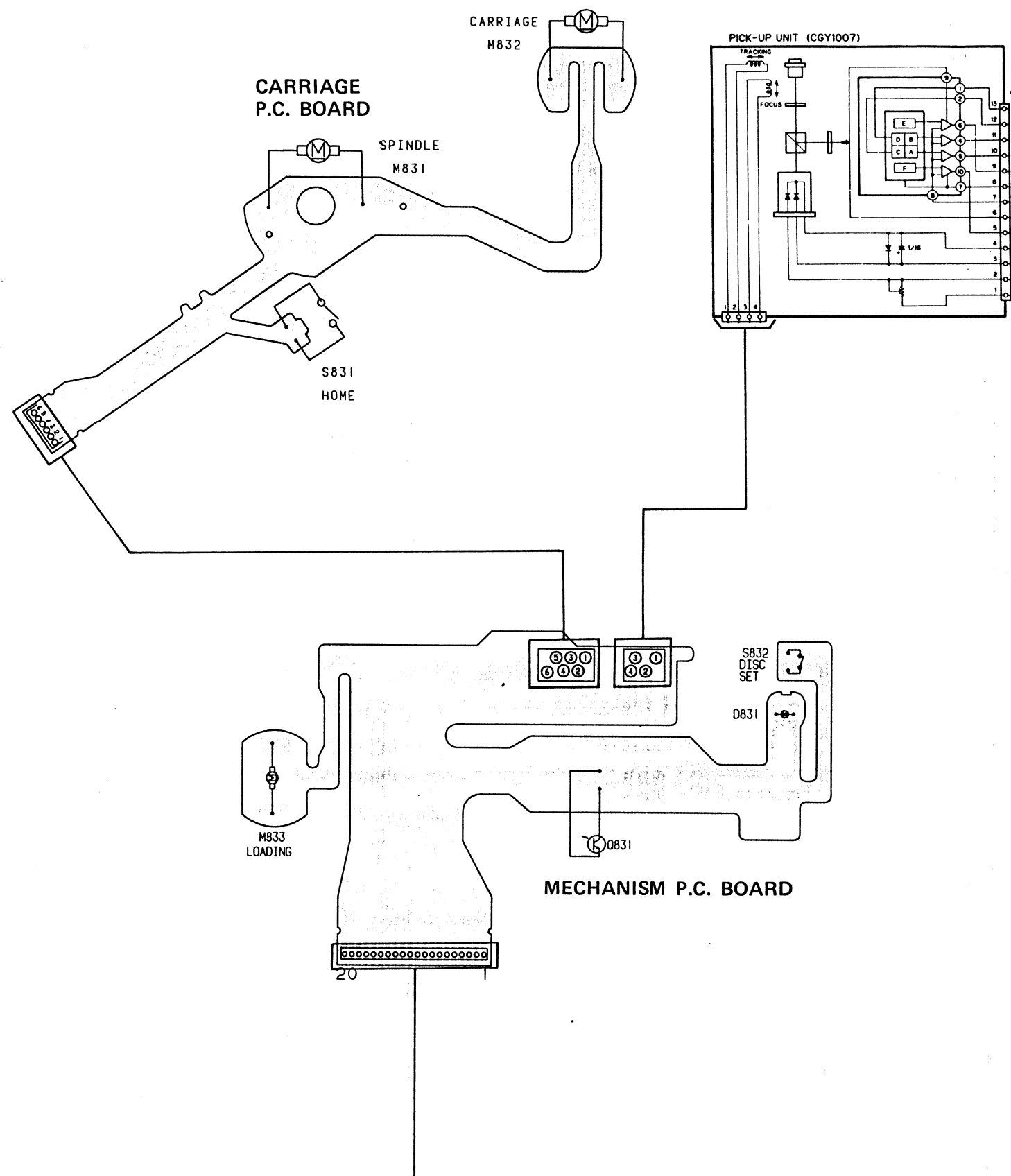
Q351	IC351	IC657	IC601	IC703	Q705	IC701	IC751	Q702	IC753	Q706
IC. Q	Q651	Q653	Q652	IC651	IC656	IC652	IC655	Q758	IC754	Q601
ADJ	VR352	VR351			VR651			VR604		

A

B

C

D

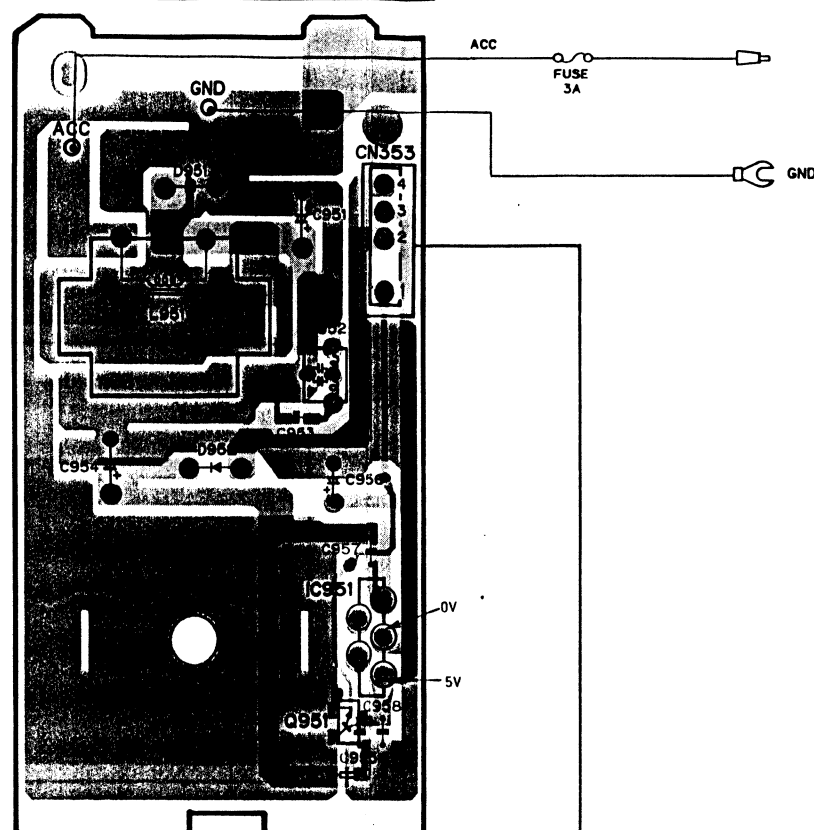


Q706 Q756 Q703
1 IC751 Q702 IC753 Q704 Q757 Q752
IC704 Q701 IC752 IC702 Q753 Q751

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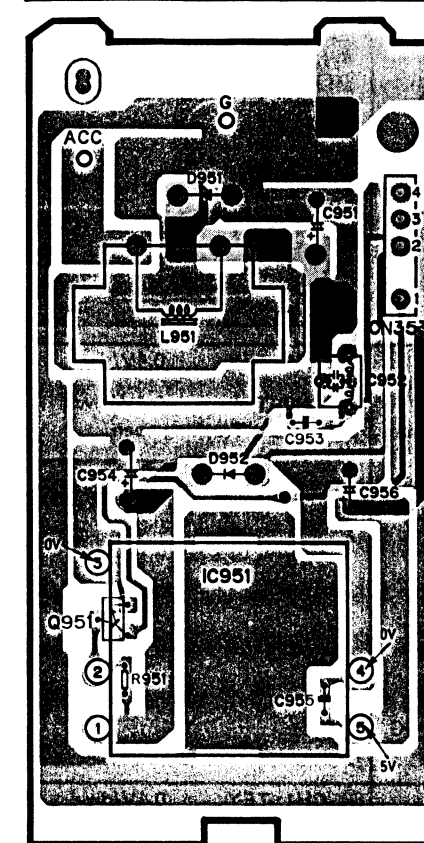
POWER SUPPLY UNIT
(Serial No.00501 -)

IC, Q Q951 IC951



POWER SUPPLY UNIT
(Serial No.00001 - 00500)

IC, Q Q951 IC951



DISPLAY UNIT

IC, Q Q904 IC901 Q903 Q902 Q901

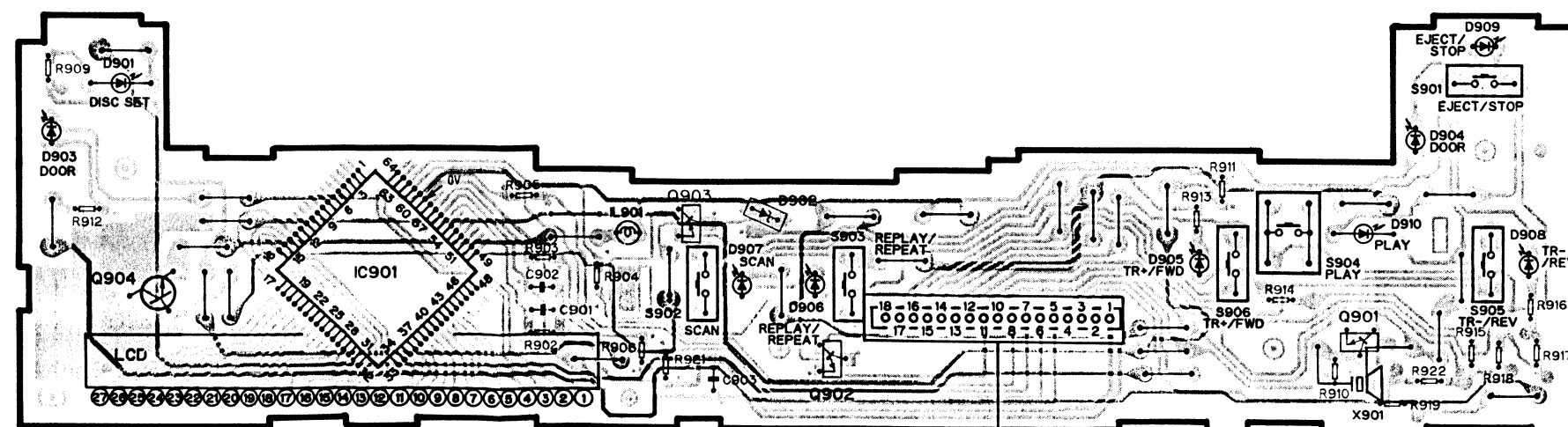
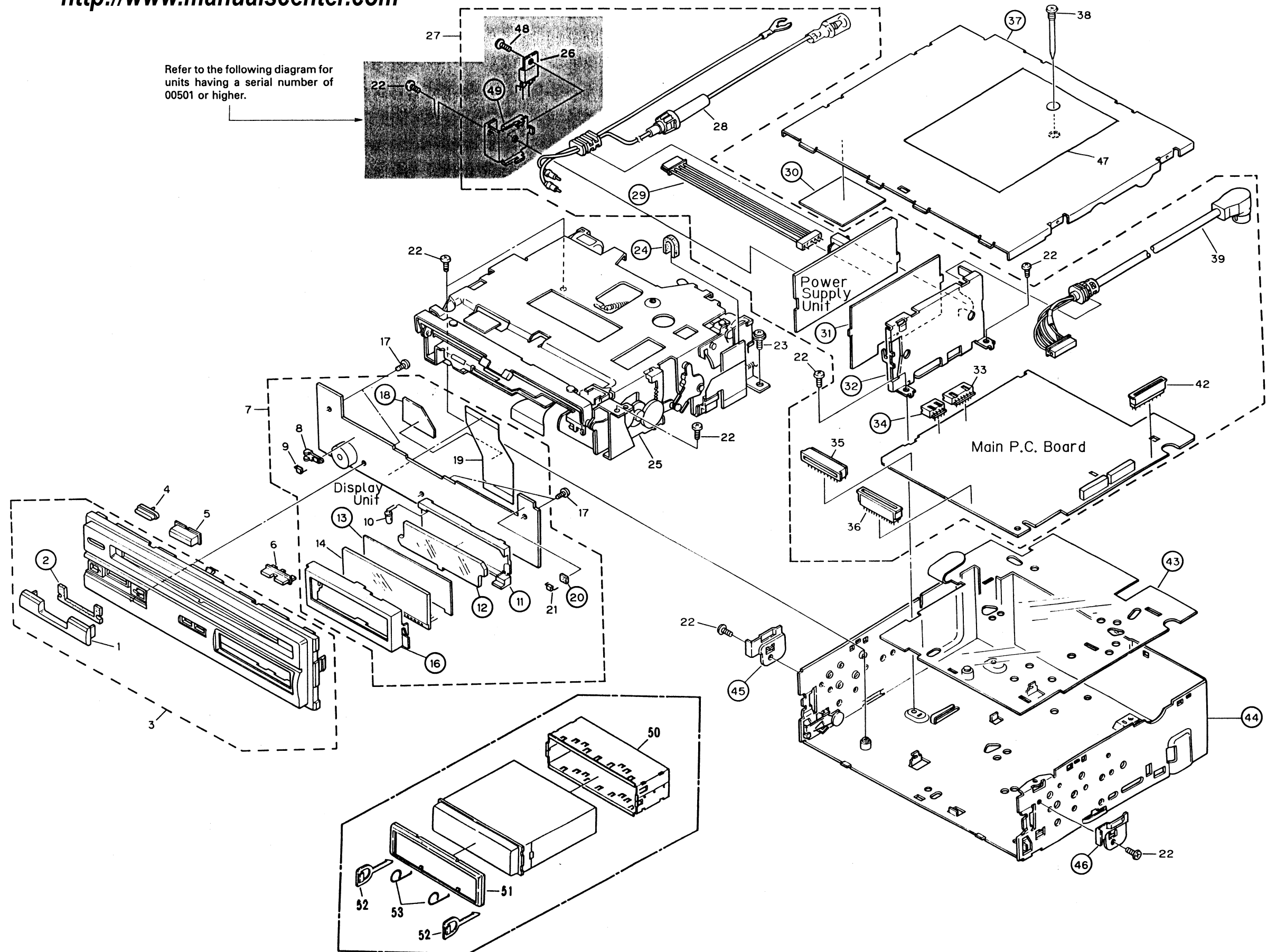


Fig. 50

• Chassis

<http://www.manualscenter.com>

11. CD MECHANISM UNIT EXPLODED VIEW

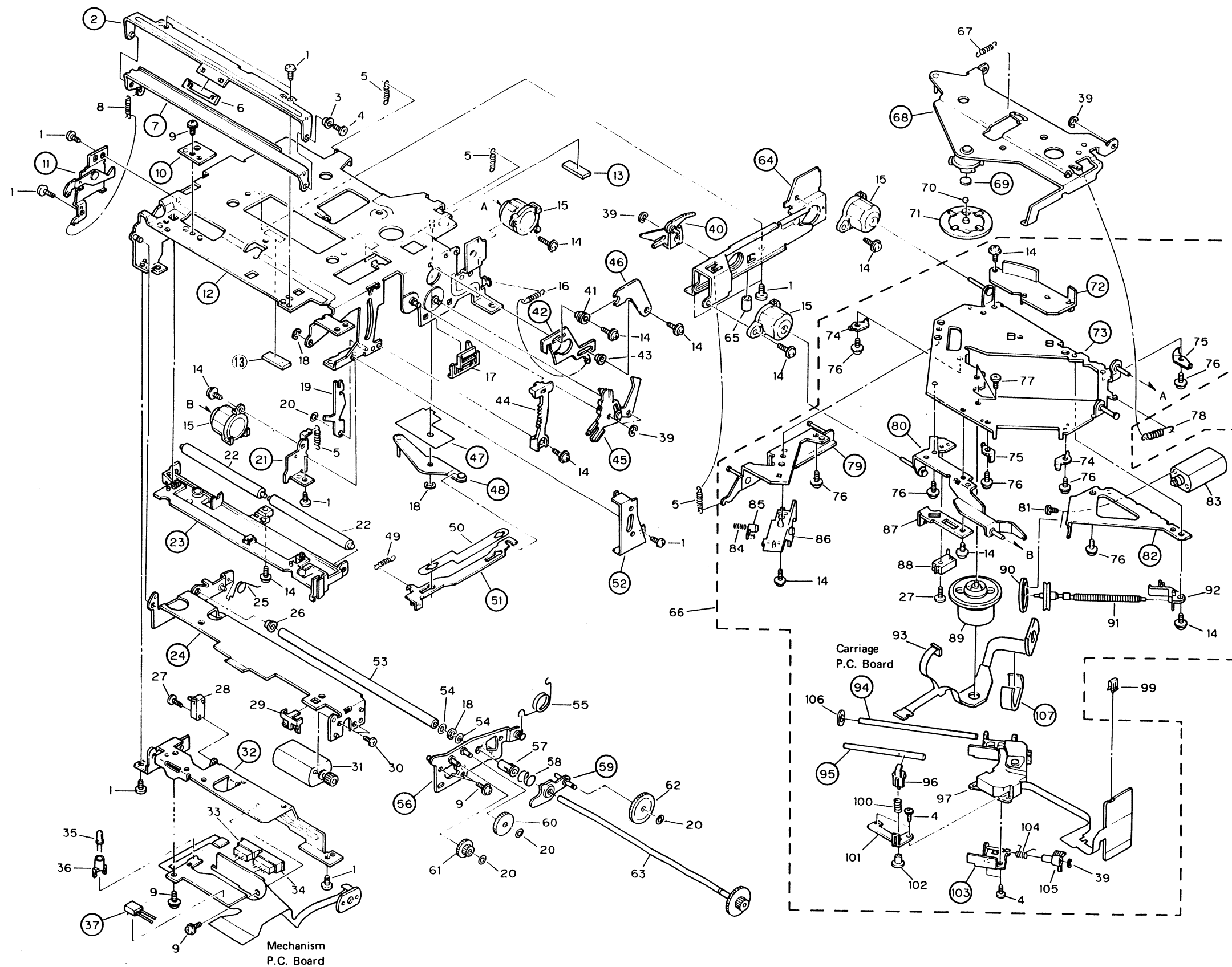


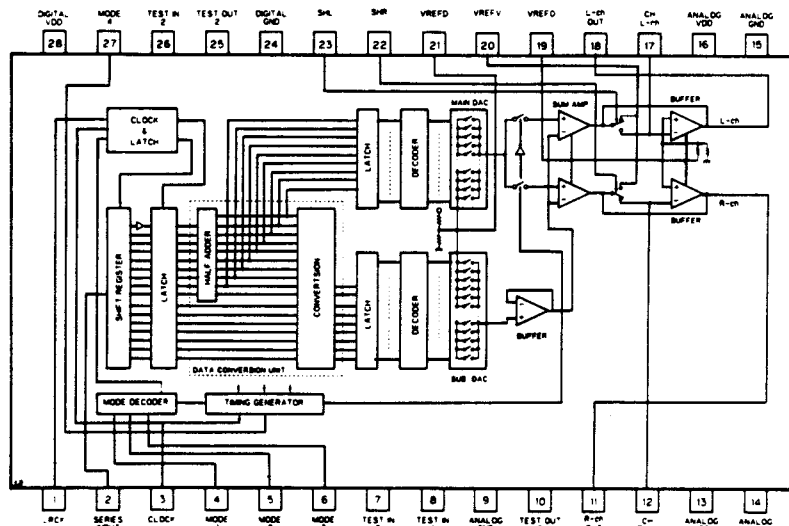
Fig. 52

Pin No.	Pin Name	I/O	Function and Operation
73	V _{DD}	—	Power supply (+ 5V)
74	DA12	Output	RAOV output
75	DA13	Output	C4LR output
76	DA14	Output	C21O output
77	DA15	Output	C21O output
78	DA16	Output	DATA output
79	WDCK	Output	Strobe signal output (176.4kHz)
80	LRCK	Output	Strobe signal output (88.2kHz)

Note:

C1F1: C1 decoding error correction status monitor output
 C1F2: C1 decoding error correction status monitor output
 C2F1: C2 decoding error correction status monitor output
 C2F2: C2 decoding error correction status monitor output
 C2FL: Corrected status output - "H" if C2 system currently being corrected cannot be corrected
 C2PO: C2 pointer indication output - synchronized with audio data output
 RFCK: Read frame clock output - crystal oscillator 7.35kHz
 WFCK: Write frame clock output - $f = 7.35\text{kHz}$ when crystal oscillator is locked
 PLCK: VCO/2 output - $f = 4.3218\text{MHz}$ when EFM signal is locked
 UGFS: Unprotected frame synchronizing pattern output
 GTOP: Frame synchronization protection status indicator output
 RAOV: ± 4 frame jitter absorption RAM overflow and underflow indicator output
 C4LR: Strobe signal - 176.4kHz
 C21O: C21O inverting output
 C21O: Bit clock output - 2.1168MHz
 DATA: Audio signal serial data output

*IC703: $\mu\text{PD6355G}$

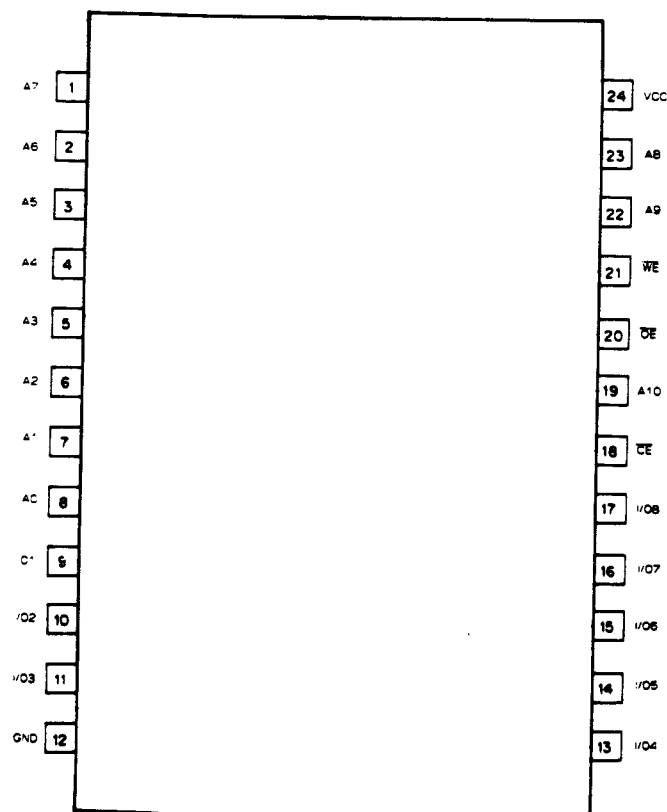


● Pin Functions ($\mu\text{PD6355G}$)

Pin No.	Pin Name	I/O	Function and Operation
1	LRCK	Input	Input data left/right discriminator signal input pin "L" = Left, "H" = Right
2	SI	Input	Serial data input pin
3	CLK	Input	Serial input data read clock input pin
4-6	M1-M3	Input	Input data mode selector pin

Pin No.	Pin Name	I/O	Function and Operation
7,8	TI ₀ , TI ₁	Input	Test pins
9	A·GND		Analog stage ground pin
10	TOO	Output	Test pin
11	ROUT	Output	Right channel analog signal output pin
12	CHR	Output	Right channel analog signal sample hold capacitor pin
13	A·VDD		Analog stage power supply pin
14,15	A·GND		Analog stage ground pins
16	A·VDD		Analog stage power supply pin
17	CHL	Output	Left channel analog signal sample hold capacitor pin
18	LOUT	Output	Left channel analog signal output pin
19	VREFO		Operation amplifier reference connection
20	VREFV		Connection to AGND via capacitor
21	VREFD		Connection to resistance ladder
22	SHR	Input	Right channel analog output sample hold timing signal Active high
23	SHL	Input	Left channel analog output sample hold timing signal Active high
24	D·GND		Logic stage ground pin
25	TO2	Output	Test pin
26	TI2	Input	Test pin
27	M4	Input	Internal logic clock selection which determines whether input from CLK pin is to be divided or not "H": No division, "L": Divide by 2
28	D·VDD		Logic stage power supply pin

*IC702 : CXK5816M-15L

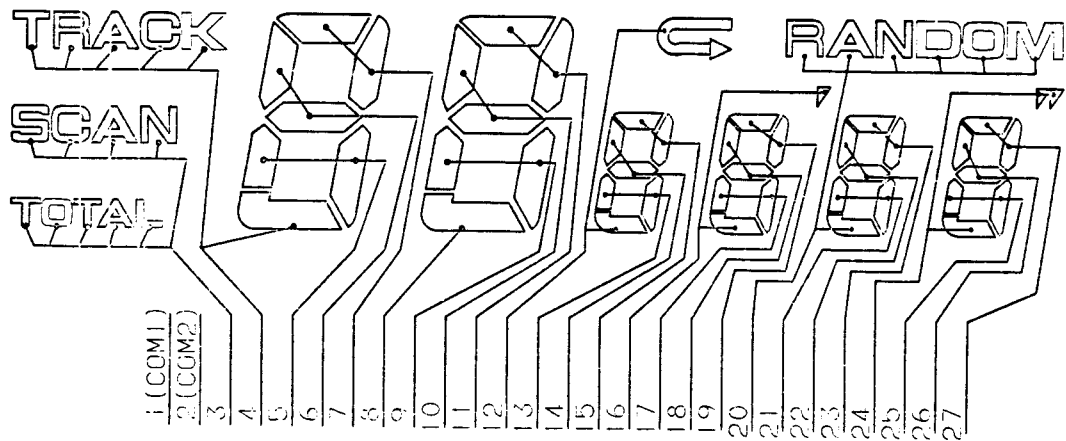


● Circuit Diagram Symbols

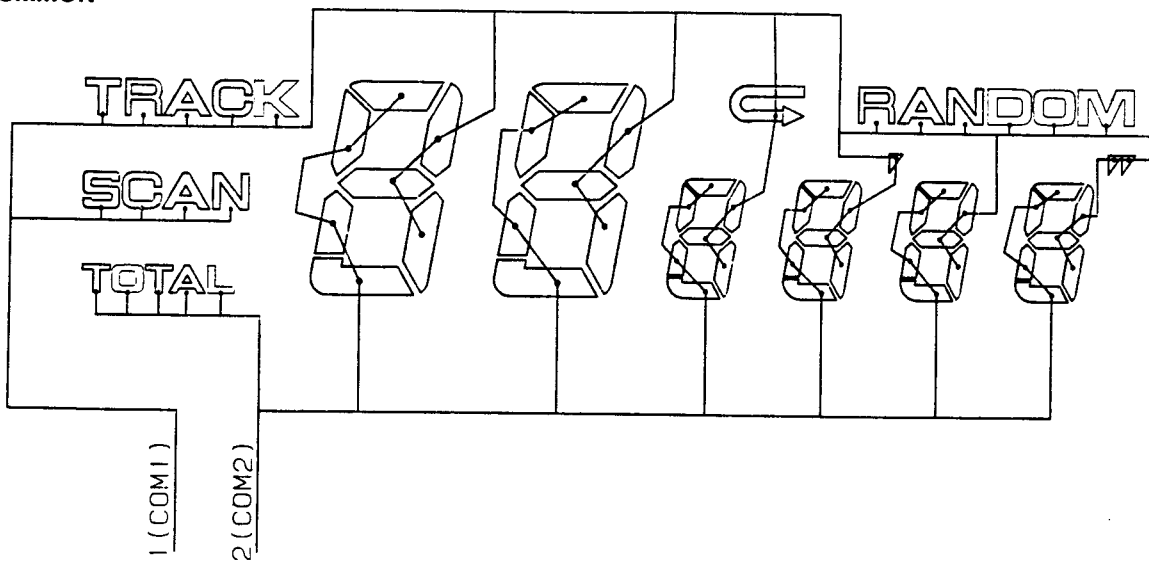
Symbol	Function	Symbol	Function
A	1/4 division detector output used in detection of RF and focus signal	FEO2	Focus 2 (IC655 pin no.1)
ACC	14.4V	FLOAT	Carriage mechanism play position detector signal
AGND	Analog ground	HOME	Home position detector signal (pick-up at home position when "L")
ASY	Asymmetry	IN1	Motor control signal 1
ATSC	Anti-shock (carriage motor control during playback)	IN2	Motor control signal 2
B	1/4 division detector output used in detection of RF and focus signal	IN3	Motor control signal 3
BATT	14.4V (Constant power supply)	ISETY	ISET resistance pin (IC601 pin no.31)
BDATA	Bus data signal	LAMP	Photo-interrupter drive signal
BRST	Bus reset signal	LD	Laser diode
BRXEN	Bus line busy signal	LOAD	Disc loading power supply ON/OFF signal
BSCK	Bus synchronizing shift clock	MON	Motor ON (spindle forward or reverse when "H")
BSRQ	Bus service request line	MD	Monitor diode
BYP1	Bypass 1 (non-drive enabled by connecting to ground during PWM IC651 operation)	MUTG	Mute signal (muting ON when "L")
BYP2	Bypass 2 (non-drive enabled by connecting to ground during PWM IC652 operation)	POWER	Power supply control signal
C	1/4 division detector output used in detection of RF and focus signal	REG5	+ 5V
CBRAKE	PWM driver brake control signal (brake on when "L")	SLO	Carriage output signal (IC601 pin no.14)
CLAMP	Disc set detect signal	SM +	Spindle motor drive signals (PWM OUT)
CM +	Carriage motor drive signal (PWM OUT)	SM -	
CM -		SPC	Spindle motor rpm detector signal (low speed when "L", IC656 pin nos.1 & 7)
CONT	PWM driver ON/OFF signal (ON when "H")	SPCO	Spindle brake (spindle brake when "H", IC751 pin no. 59)
D	1/4 division detector output used in detection of RF and focus signal	SPDLO	Spindle motor error signal (IC601 pin no.39)
DEEM	Emphasis selector switch (emphasis ON when "H")	SPTAO	Tracking side path signal output
DFCT	DEFECT signal ("H" when defect)	SMIN	Spindle motor drive PWM input signal
DGND	Digital ground	STBY	Standby position detector signal
DISC	Disc presence detector signal	TA +	Tracking actuator drive signals (PWM OUT)
E	Tracking signal start detector	TA -	
EFM	8-14 modulation	TAIN	Tracking actuator drive PWM input signal
EJ	Eject key	TEND	Mechanism clamped switching line
END	Carriage mechanism END position detector signal	TGU	Tracking side path input
F	Tracking signal end detector	TIG	Switch ground
FA +	Focus actuator drive signal (PWM OUT)	TOG	Switch ground
FA -		TZC	T.E zero-cross signal
FAIN	Focus drive PWM input signal	VC	Signal reference voltage (2.5V)
FEO	Focus signal output (IC601, CXA1082AQ pin no.5)	VREF	Signal reference voltage buffer output (2.5V)

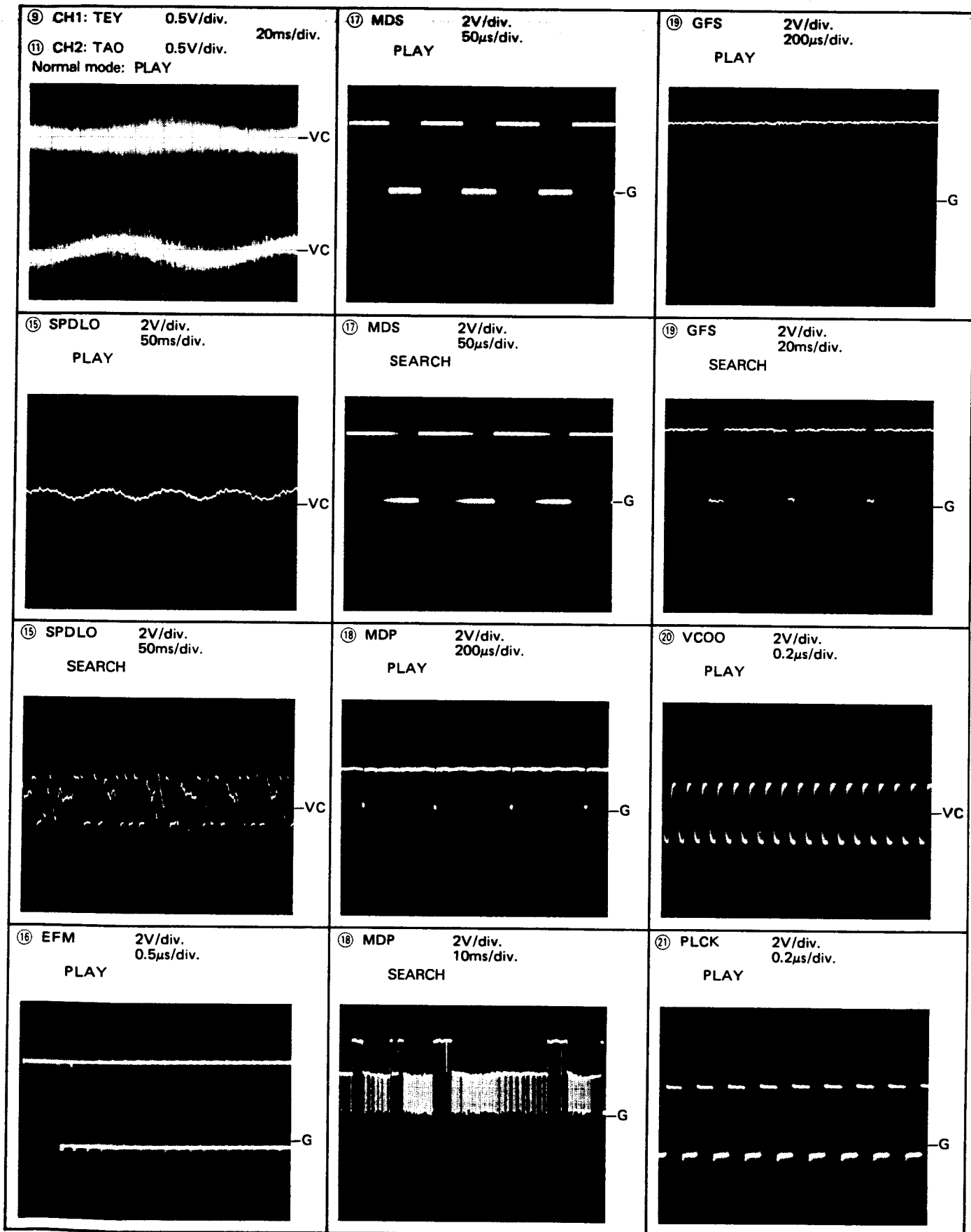
● LCD : CWW1119

● SEGMENT



● COMMON





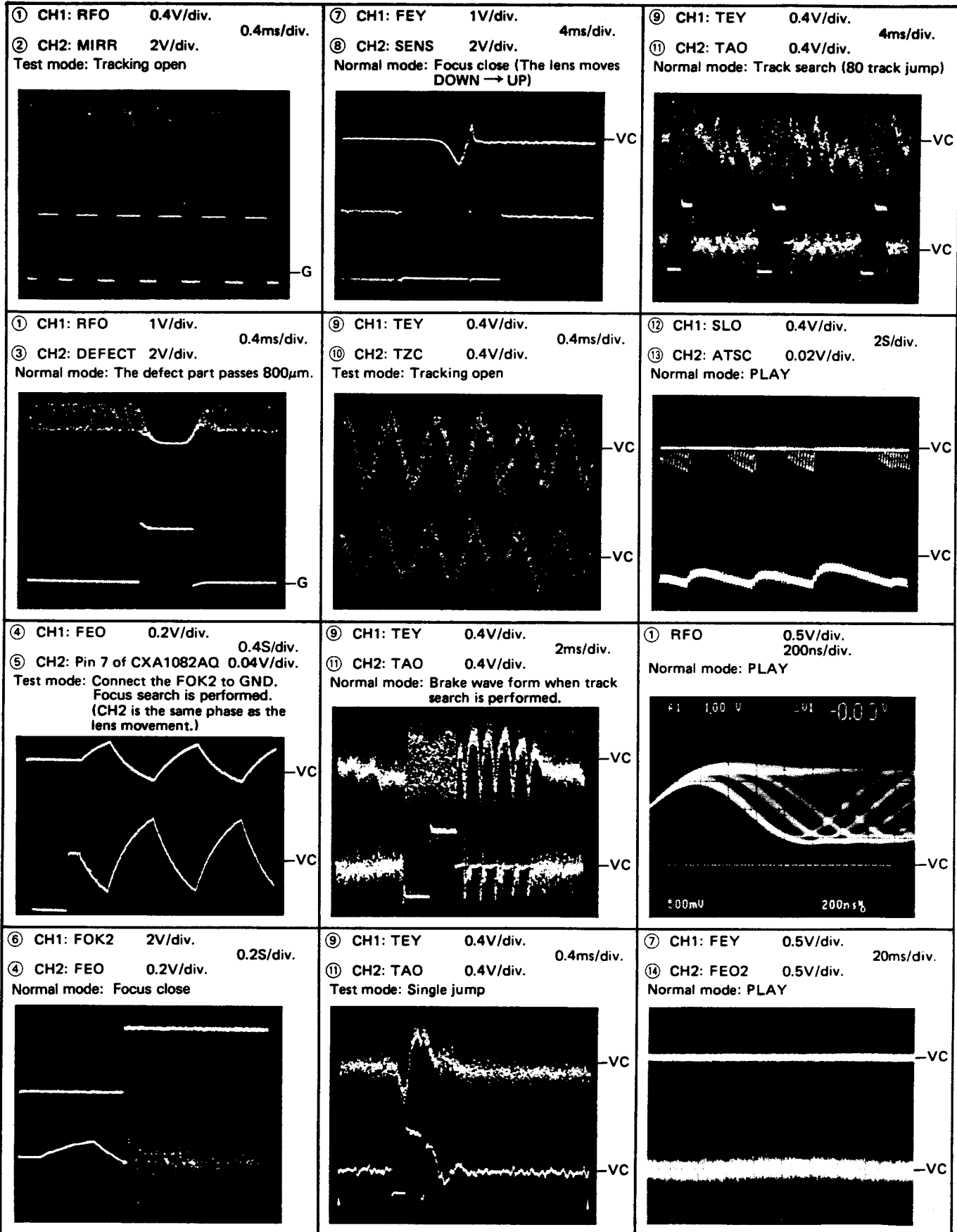
Note: 1. The encircled numbers denote measuring points in the circuit diagram.

2. Reference voltage.

G: GND

VC: Pin 14 of CXA1081M (2.5V)

● Wave Forms



10. CHASSIS EXPLODED VIEW

NOTE:

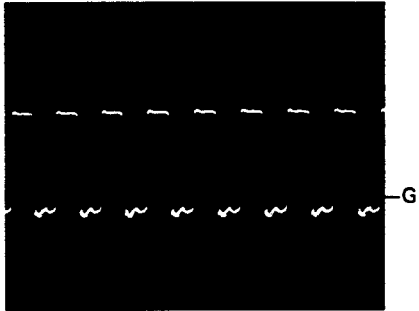
- For your Parts Stock Control, the fast moving items are indicated with the marks ★ ★ and ★.
- ★ ★: GENERALLY MOVES FASTER THAN ★.
- This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts whose parts numbers are omitted are subject to being not supplied.
- Parts marked by "◎" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

• Parts List

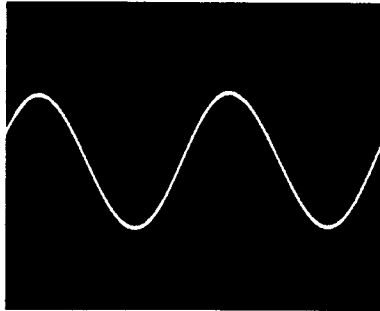
Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
★	1	CAC1543	Button (UC)	◎	27	CWX1159	Main Unit (UC)
		CAC1784	Button (EW)			CWX1161	Main Unit (EW)
	2		Cushion	★	28	CDE2254	Cord (UC)
	3	CXA2520	Grille Unit (UC)			CDE2255	Cord (EW)
		CXA2521	Grille Unit (EW)		29		Connector
★	4	CAC1439	Button		30		Insulator
★	5	CAC1541	Button (UC)		31		Insulator
		CAC1785	Button (EW)		32		Holder
★	6	CAC1542	Button		33	CKS-470	Plug
◎	7	CWX1160	Display Unit		34		Plug
	8	CNV1610	Spacer		35	CKS1087	Connector
★	9	LN41C	LED		36	CKS1415	Connector
★★	10	CEL1089	Lamp		37		Case
	11		Holder		38	CBA1094	Screw
	12		Lens		39	CDE2133	DIN Cord
	13		Plate		40	
	14	CWW1119	LCD		41	
	15	CNC2301	Contact		42	CKS1328	Connector
	16		Holder		43		Insulator
	17	BPZ20P060FMC	Screw		44		Chassis Unit
	18		Spacer		45		Bracket
	19	CNP1593	P.C. Board		46		Bracket
	20		Spacer		47	CRP1031	Caution Card
★	21	LN81RC5V	LED		48	BMZ30P050FMC	Screw
	22	BMZ26P040FMC	Screw		49		Bracket
	23	PMF26P060FMC	Screw		50	CNC1484	Holder
	24		Cushion		51	CNS1403	Panel
◎	25	CXK2200 (CXK2240)	CD Mechanism Unit		52	CNC1631	Handle
★★	26	L780S05-LR	IC		53	CBH-865	Spring

②② BCLK

2V/div.
0.2 μ s/div.

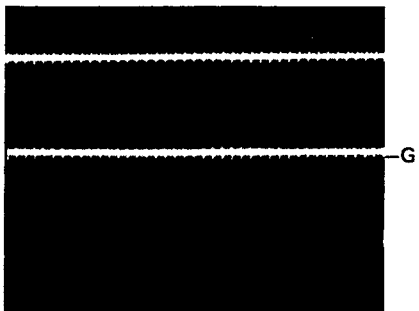


②⑤ L or R L.P.F. 0.5V/div.
0.2ms/div.
PLAY (1kHz: FS)



②⑥ DATA

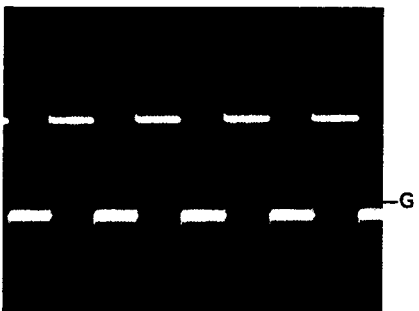
2V/div.
0.2 μ s/div.



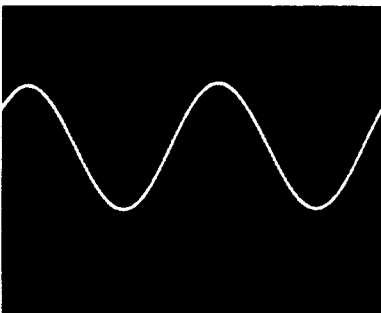
②③ LRCK

2V/div.
5 μ s/div.

PLAY



②④ L or R OUT 0.5V/div.
0.2ms/div.
PLAY (1kHz: FS)



Mark	No.	Part No.	Description
	91	CXA2375	Screw Unit
	92	CNV1781	Holder
	93	CNP1709	P.C. Board
	94		Shaft
	95		Shaft
	96	CNV1512	Holder
	97	*****	PU Unit
	98	
	99	CBL1010	Short Pin
	100	CBH1105	Spring

Mark	No.	Part No.	Description
	101	CNC1736	Holder
	102	CLA1319	Screw
	103		Holder Unit
	104	CBH1106	Spring
	105	CNV1513	Rack
	106	CNV1863	Cushion
	107		Cover

Mark	No.	CD Mechanism Unit		Description
		CXK2200	CXK2240	
◎	66	CXA1910	CXA2650	Carriage Unit
	97	CGY1007	CGY1008	PU Unit

● Parts List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1	BMZ26P030FMC	Screw		46		Holder
	2		Bracket		47		Spacer
	3	CLA1311	Collar		48		Arm Unit
	4	CBA1062	Screw		49	CBH1134	Spring
	5	CBH1182	Spring		50	CNM2152	Spacer
	6	CNV1641	Holder		51		Lever Unit
	7		Arm		52		Bracket
	8	CBH1137	Spring		53	CNV1634	Roller
	9	CBA1076	Screw		54	CBF1002	Washer
	10		P.C.Board		55	CBH1133	Spring
	11		Bracket Unit		56		Bracket Unit
	12		Chassis Unit		57	CNV1632	Bearing
	13		Cushion		58	CBH1181	Spring
	14	CBA1075	Screw		59		Arm Unit
	15	CXA2148	Damper Unit		60	CNV1628	Gear
	16	CBH1139	Spring		61	CNV1627	Gear
	17	CNV1633	Holder		62	CNV1629	Gear
	18	YE20FUC	Washer		63	CXA2456	Gear Unit
	19	CNV1631	Cam		64		Bracket Unit
	20	CBF-166	Washer		65	CNY-265	Cushion
	21		Bracket	◎	66	*****	Carriage Unit
	22	CNV1636	Roller		67	CBH1136	Spring
	23		Guide		68		Arm Unit
	24		Arm Unit		69		Spacer
	25	CBH1135	Spring		70	CNR1079	Ball
	26	CNV1884	Bearing		71	CNV1643	Clamper
★★	27	CBA1070	Screw		72		Guide
	28	CSN1009	Switch(Disc Set)		73		Chassis Unit
	29	CNV1644	Holder		74	CNC1738	Holder
	30	HBA-175	Screw		75	CNC1739	Holder
★★	31	CXA2129	Motor Unit>Loading)		76	PMS20P030FMC	Screw
	32		Bracket		77	HBA-163	Screw
	33	CKS-719	Connector		78	CBH1138	Spring
	34	CKS-721	Connector		79		Bracket Unit
★	35	SLH-34VC3F	LED		80		Holder Unit
	36	CNV1639	Holder		81	CBA-098	Screw
	37		Connector		82		Bracket
	38	CNP1711	P.C.Board	★★	83	CXA2133	Motor Unit(Carriage)
	39	YE15FUC	Washer		84	CBH1104	Spring
	40		Arm Unit		85	CNV1844	Spacer
	41	CLA1472	Collar		86	CNV1780	Holder
	42		Lever		87	CNV1674	Holder
	43	CLA1309	Collar	★★	88	CSN-094	Switch(Home)
	44	CNV1630	Gear	★★	89	CXM1033	Motor Unit(Spindle)
	45		Arm Unit	★★	90	CNT1020	Belt

12. ELECTRICAL PARTS LIST

NOTE:

- For your parts Stock Control, the fast moving items are indicated with the marks ** and †.
- † : GENERALLY MOVES FASTER THAN †.
- This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/8S □□□J, RS1/10S □□□J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

Unit Number :

Unit Name : Main P.C.Board

MISCELLANEOUS

RESISTORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.	Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
**	IC	351			CXA1081M	R	351			RS1/2P220JL	
**	IC	601			CXA1082AQ	R	353 381 714			RS1/10S102J	
**	IC	651 652			PA3023	R	354 363 378			RS1/10S223J	
**	IC	655 657			M5218FP	R	355 610 625			RS1/10S1113J	
**	IC	656			M5233FP	R	356 357 358 359 669			RS1/10S563J	
**	IC	701			CXD1135Q	R	360 361			RS1/10S124J	
**	IC	702			CXK5816M	R	362 763			RS1/10S564J	
**	IC	703			μPD6355G	R	364 365 618 671			RS1/10S105J	
**	IC	704			KHA221A	R	366 377 666 769			RS1/10S562J	
**	IC	751			PD4177	R	367			RS1/10S104J	
**	IC	752			M51955AFP	R	379 722 723 757 758			RS1/10S472J	
**	IC	753			M51945AFP	R	380 617 628 682			RS1/10S203J	
**	IC	754			M54546AL	R	382			RS1/10S363J	
**	Q	351 751			2SB822F	R	383			RS1/10S823J	
**	Q	601 652 653 705		Chip Transistor	UN2211	R	384 630			RS1/10S273J	
**	Q	651 701 752 753 756		Chip Transistor	UN2211	R	601 602			RS1/10S101J	
**	Q	702 706		Chip Transistor	UN2111	R	606			RS1/10S224J	
**	Q	703 704		Chip Transistor	2SD1048	R	607 764			RS1/10S683J	
**	Q	757 758			2SD1226M	R	608			RS1/10S823J	
†	D	651			ERA15-02	R	609 614 619 627 759 773 774			RS1/10S104J	
†	D	652			ERA82-004V	R	611			RS1/10S432J	
†	D	653 654 655 656 657 658 659			ERA82-004VH	R	612			RS1/10S623J	
†	D	661 662			HZS2A1L	R	613			RS1/10S624J	
†	D	701		Chip Diode	MA151WA	R	616			RS1/10S183J	
†	D	702 751 752		Chip Diode	MA151K	R	620			RS1/10S332J	
†	D	753		Chip Diode	MA3200	R	621			RS1/10S184J	
†	D	754		Chip Diode	MA3056	R	622 670 687 696 697 715 718 719 751 752			RS1/10S103J	
†	D	755		Chip Diode	MA3062	R	623 765			RS1/10S473J	
†	L	651		Choke Coil	CTH1035	R	624			RS1/10S393J	
†	TH	351		Thermister	CCX1001	R	629			RS1/10S153J	
†	TH	751		Thermister	CCX-021	R	631			RS1/10S272J	
†	X	701		Crystal Resonator	CSS1027	R	634			RS1/10S474J	
†	X	751		Ceramic Resonator	CSS-042	R	665 789			RS1/10S821J	
**	VR	351		Semi-fixed 47kΩ(B), 10kΩ(B)×2	CCP1005	R	667 684 686 717			RS1/10S472J	
**	VR	352		Semi-fixed 47kΩ(B)×4	CCP1006	R	668 679			RS1/10S392J	
**	VR	604		Semi-fixed 2.2kΩ(B)	HCP-267	R	672			RS1/10S364J	
**	VR	651		Semi-fixed 47kΩ(B)	HCP-275	R	673			RS1/10S473J	
						R	674 716			RS1/10S332J	
						R	676 799			RS1/10S201J	
						R	677			RS1/10S201J	

Mark	Circuit Symbol & No.	Part Name	Part No.	Mark	Circuit Symbol & No.	Part Name	Part No.
R 678			RS1/10S223J	C 677 679			CCSQSL681J50
R 680			RS1P1R5JL	C 680			CCSQSL681J50
R 681			RS1/10S203J	C 681			CKSYB393K25
R 683			RS1/10S101J	C 701 710 712 726			CASA6R8M6R3
R 685 692			RS1/10S105J	C 702			CASA220M6R3
R 690			RS1/10S272J	C 706 707			CCSQCH470J50
R 691 703 755			RS1/10S103J	C 717 718			CEA470M6R3LS
R 694 786			RS1/10S822J	C 719			CEA101M6R3LS
R 701			RS1/10S100J	C 722 723			CEA330M6R3LS
R 708 709			RS1/10S242J	C 728 729 751 754 758 759			CKSQYB103K50
R 710 711			RS1/10S152J	C 752			CCSQCH300J50
R 712 713			RS1/10S392J	C 753			CCSQCH300J50
R 721			RS1/10S47J	C 755			CEA221M6R3LL
R 724 725 726 727 728 777 784 788			RS1/10S0R0J	C 757			CASA6R8M10
R 753 756			RS1/10S681J				
R 760 761 762 770 771 785			RS1/10S222J	Unit Number :			
R 766 767			RS1/10S681J	Unit Name : Power Supply Unit (Serial No.00501~)			
R 768 775 776			RS1/10S103J				
R 781			RS1/10S303J				
R 782			RS1/10S154J				

CAPACITORS

Mark	Circuit Symbol & No.	Part Name	Part No.	Mark	Circuit Symbol & No.	Part Name	Part No.
C 351 720			CEA101M6R3LS	** IC 951		Regulator	L780S05-LR
C 352 611 625 626 662 664 713 721 724 727			CKSQYB103K50	** Q 951		Chip Transistor	UN2211
C 353 613 666			CKSYB333K25	* D 951 952			ERA15-02VH
C 354 357			CASA330M6R3	L 951		Choke Coil	CTF-002
C 355 667 668 714			CKSQYB103K50	R 951			RS1/10S103J
C 356			CKSYB332K50	C 951 954			CEA471M16L2
C 359 614			CEAR47M50LS	C 952			CCG-105
C 360 361			CSZS010M16	C 953 955			CKSQYF473Z50
C 370 703 704			CCSQCH220J50	C 956			CEAUH221M10
C 371 615			CKSQYB102K50	C 957			CKSYF334Z25
C 372			CCSQCH100D50	C 958			CKSYF104Z25
C 373 627			CCSQCH220J50	Unit Number :			
C 601			CKSQYB222K50	Unit Name : Power Supply Unit (Serial No.00001~00500)			
C 602 653 708 709			CEA100M25LS	Mark	Circuit Symbol & No.	Part Name	Part No.
C 603 607 612 716			CEA100M6R3LS	** IC 951		D/D Converter	KHA1001B
C 605 620 622 628 629			CKSYB473K25	** Q 951		Chip Transistor	UN2211
C 606			CEA220M16LS	* D 951 952			ERA15-02VH
C 608			CEA220M6R3NPLL	L 951		Choke Coil	CTF-002
C 609 756			CKSQYB472K50	R 951			RS1/10S103J
C 610 619			CCSQCH221J50	C 951 954			CEA471M16L2
C 616			CFA220M6R3LS	C 952			CCG-105
C 617			CEA4R7M16LS	C 953 955			CKSQYF473Z50
C 618			CKSQYB682K50	C 956			CEAUH221M10
C 621			CEA4R7M16NPLL	Unit Number :			
C 623			CKSQYB272K50	Unit Name : Display Unit			
C 624				MISCELLANEOUS			
C 651 670			CCSQCH391J50	Mark	Circuit Symbol & No.	Part Name	Part No.
C 652	470 μ F/16V		CKSYF224Z25	** IC 901			LC7582P
C 654 658			CCH-114	** Q 901 902		Chip Transistor	UN2211
C 656			CCSQCH221J50	** Q 903		Chip Transistor	UN2111
C 661 663			CEA100M16LS	** Q 904		Chip Transistor	2SD1760F5
C 665 678			CEA010M50NPLL	* D 901		LED	LN81RC5V
C 671 672			CKSYB473K25	* D 902		Chip Diode	MA3091
C 674 705			CSZSR68M20	* D 903 904 905 906 907 908 909			AV5724K
C 675 676			CASA100M6R3	* D 910		LED(PLAY)	LN41C
			CEA2R2M35LS	X 901		Buzzer	CPV1005
				** S 901 902 903 905 906		Switch	CSG1021

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
**	S	904		Switch(PLAY)	CSG1018
**	IL	901		Lamp	CEL1089
				LCD	CW1119

RESISTORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
	R	902			RS1/10S104J
	R	903 904 905 906			RS1/10S102J
	R	909			RS1/10S681J
	R	910			RS1/10S222J
	R	911			RS1/10S821J
	R	912 919 922			RS1/10S201J
	R	913 914 915 916 917 918			RS1/10S151J
	R	921			RS1/10S103J

CAPACITORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
	C	901			CCSCH301J50
	C	902 903			CKSYB103K50

Unit Number :
Unit Name : Carriage P.C.Board

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
**	M	831		Motor Unit(Spindle)	CXM1033
**	M	832		Motor Unit(Carriage)	CXA2133
**	S	831		Switch(Home)	CSN-094

Unit Number :
Unit Name : Mechanism P.C.Board

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
**	Q	831		Photo-transistor	PH102-F
*	D	831		LED(DISC Detect)	SLH-34VC3F
**	M	833		Motor Unit>Loading)	CXA2129
**	S	832		Switch(DISC Set)	CSN1009

Miscellaneous Parts List

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
				PU Unit	CGY1007 (CGY1008)

13. PACKING METHOD

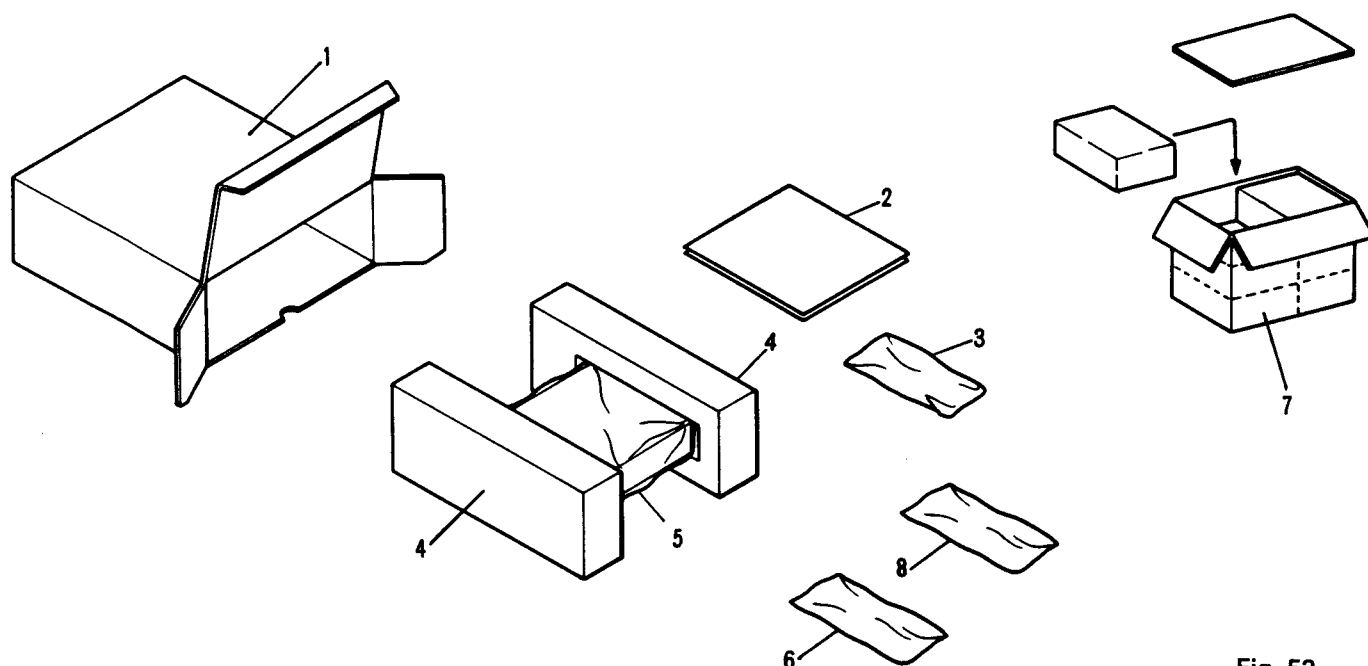


Fig. 53

•Parts List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1	CHG1534	Carton (UC)		3-6-1	BMZ30P050FMC	Screw (×2) (UC)
		CHG1533	Carton (EW)		3-6-2	BMZ40P080FMC	Screw (×4) (UC)
	2	CRD1238	Owner's Manual (UC)		3-6-3	BMZ50P080FMC	Screw (×4) (UC)
		CRD1237	Owner's Manual (EW)		3-6-4	HMF40P080FUC	Screw (×1) (UC)
		CRD1255	Installation Manual (EW)		3-6-5	CBA-102	Screw (×1)
			Caution Card		3-6-6	CBA1002	Screw (×1)
			Card		3-6-7	NF50FMC	Nut (×2)
	3	CEA1401	Accessory Assy (UC)		3-7		Screw Assy (EW)
		CEA1421	Accessory Assy (EW)		3-7-1	CBA-102	Screw (×4) (EW)
3	1	CBH-865	Spring		3-7-2	HMF40P080FUC	Screw (×1) (EW)
	3-2	CNC1631	Handle		3-7-3	HMF40P080FZK	Screw (×4) (EW)
	3-3	CNF-111	Strap		3-7-4	NF50FMC	Nut (×4) (EW)
	3-4		Spacer Unit		4	CHP1186	Styrofoam
	3-5	CNV1917	Bush		5	CEG-162	Polyethylene Bag
	3-6		Screw Assy		6	CNS1403	Panel
					7	CHL1534	Contain Box (UC)
					8	CNB1159	Mounting Bracket (EW)

Service Manual

**SERVICE GUIDE
ORDER NO.
CRT 1161**

CD MECHANISM UNIT

CX-173

- This service manual is a description of the CD mechanism found in the model numbers listed in the table below.
- When performing repairs use this manual together with the specific manual for the model under repair.

Model	Service Manual
DEH-66/UC	CRT1166
DEH-66SDK/WG	
DEH-66/EW	
DEH-66/EI	

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Keetberglaan 1, 2740 Beveren, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

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1. DISASSEMBLY

• Disassembly of the Carriage Unit

Note: There may be times when the names of parts used in this manual are not the same as those used in the lists accompanying the Exploded View. If a different name is used here, the part name given in the Exploded View is also provided in parentheses ().

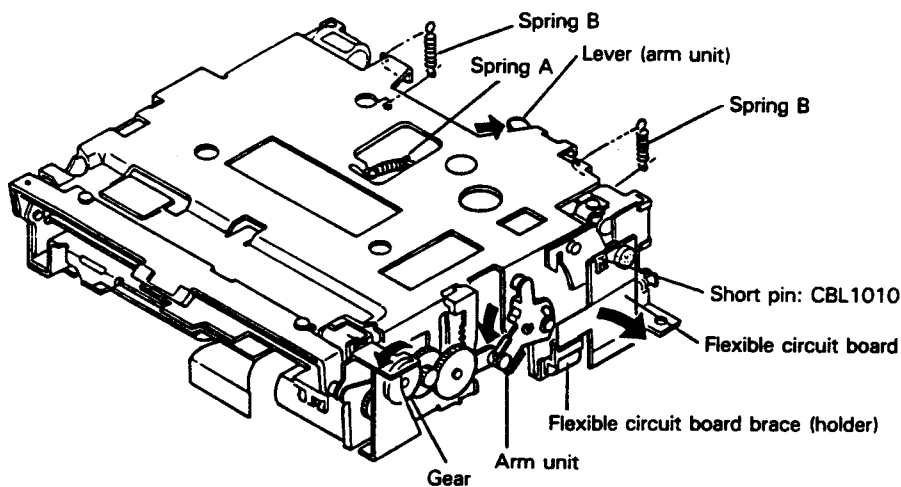


Fig. 1

1. Put the mechanism unit into a loading complete state. (Move the lever back and rotate the gear while pressing down lightly on the arm unit. Rotate the gear until the three carriage unit shafts are free and the unit is supported by the four damper units.
2. Remove Spring A and two Springs B.
3. Remove the flexible circuit board from the flexible circuit board brace.

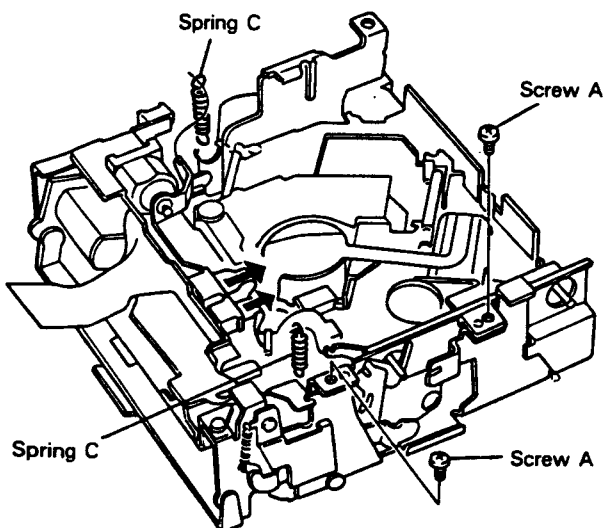


Fig. 2

4. Turn the mechanism unit upside down.
5. Remove the two Springs C.
6. Remove the two flexible circuit boards from their connectors.
7. Remove the two Screws A.

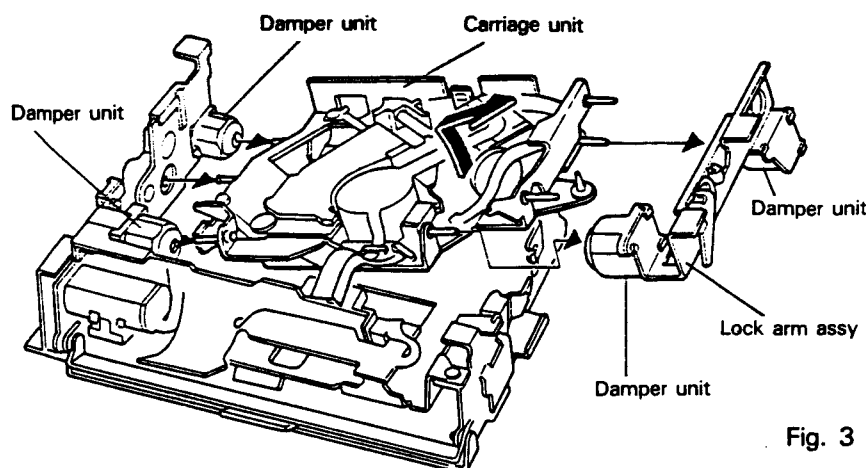


Fig. 3

8. Lift the lock arm assembly and then pull out the carriage unit.

9. Remove the carriage unit from the lock arm assembly.

Note: The damper units are lined with a thin rubber film. Be careful not to damage this when disassembling.

● Disassembly of the Carriage Motor Unit

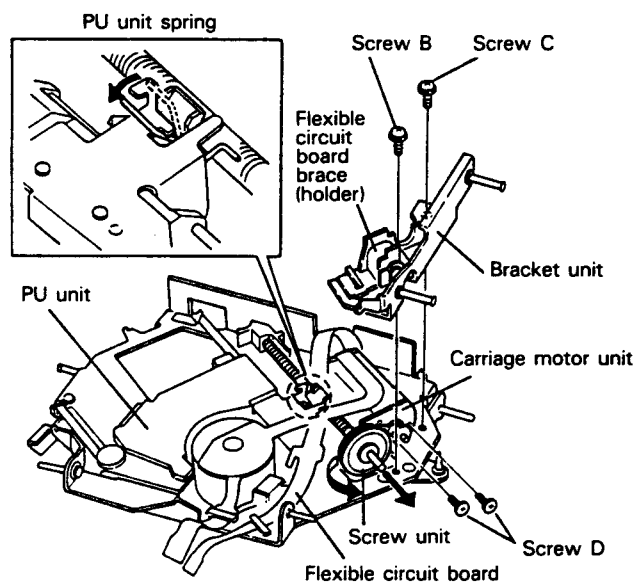


Fig. 4

1. After removing the Screw B and Screw C, remove the bracket unit. At this time remove the flexible circuit board from the flexible circuit board brace.

2. Remove the belt.

3. Cock the PU unit spring as shown in Fig. 4 and then move the PU unit to its outermost position. (Cocking the spring disengages the screw unit so that the PU unit can be moved by hand from above.)

4. Pull the screw unit out of the assembly.

5. Remove the two Screws D and then the carriage motor unit.

Note: When reinstalling the carriage motor unit, tighten Screw D and seal it.

● Disassembly of the PU Unit

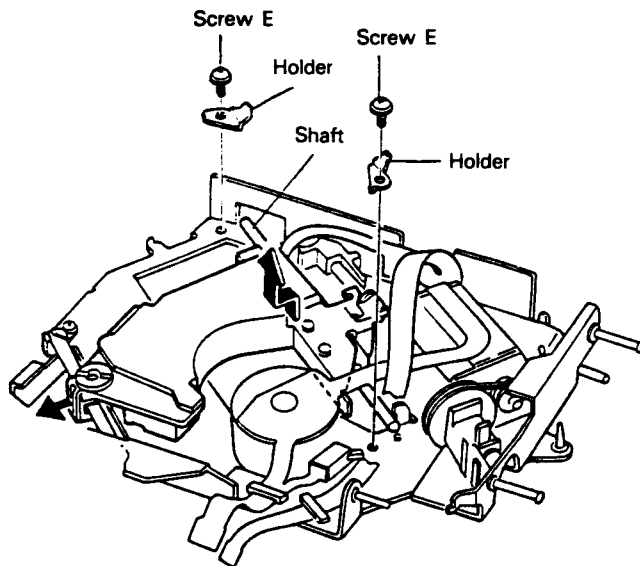


Fig. 5

1. Cock the PU unit spring as shown in Fig. 4.
Move the PU unit to the center of the shaft for easy removal.
2. Remove the two Screws E and then the holders.
3. Remove the PU unit, lifting it from the shaft side where the holders have been removed and being careful not to catch the shaft on the opposite side.
4. Pull the shaft out of the PU unit.

● Disassembly of the Spindle Motor Unit

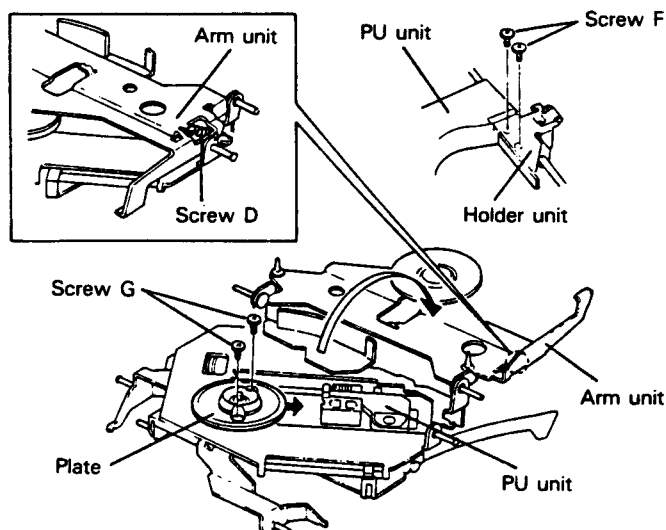


Fig. 6

1. Remove the two Screws F and then remove the holder unit from the PU unit.
2. Cock the PU unit spring as shown in Fig. 4 and move the PU unit to its outermost position.
3. Turn the whole carriage unit right side up.
4. Remove Screw D and turn the arm unit upside down.
5. Turn the spindle motor plate so that the holes on the plate are at the position of the screws underneath.
6. Remove the two Screws G.
Note: When reinstalling the spindle motor unit, tighten the Screws G and seal them.
7. Slide the spindle motor unit onto its side and remove it.

● Disassembly of the Loading Motor Unit

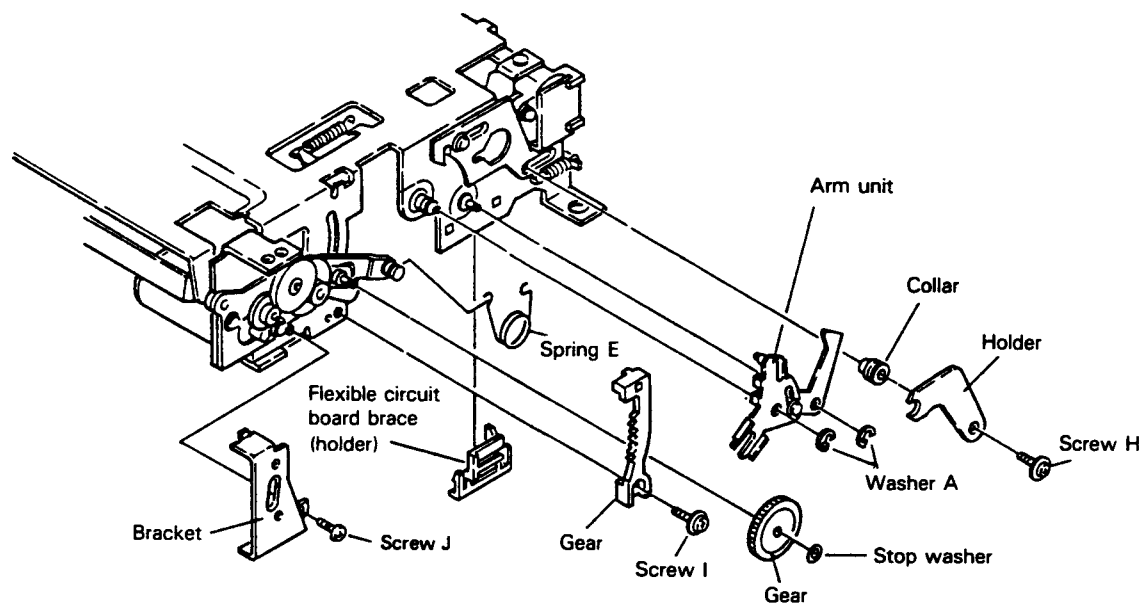
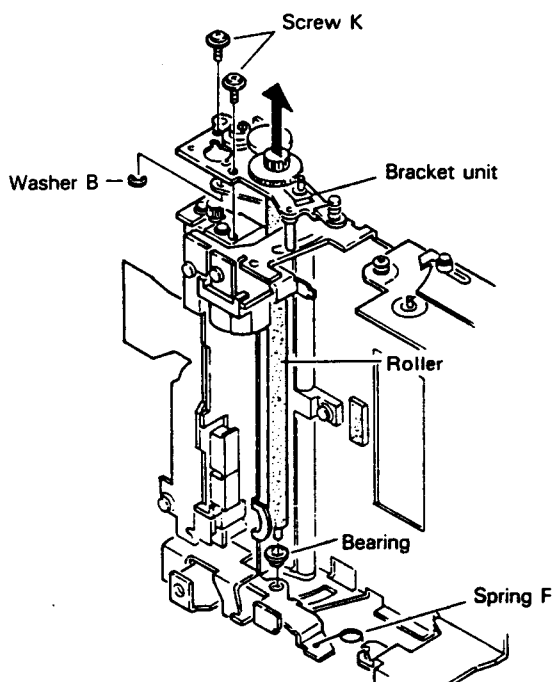


Fig. 7

1. Remove the carriage unit.
(Refer to the previous section entitled, "Disassembly of the Carriage Unit.")
2. Remove the flexible circuit board brace.
3. Remove Screw H and then the holder.

Note: When Screw H is removed, the collar will also come free. Be sure not to lose it.

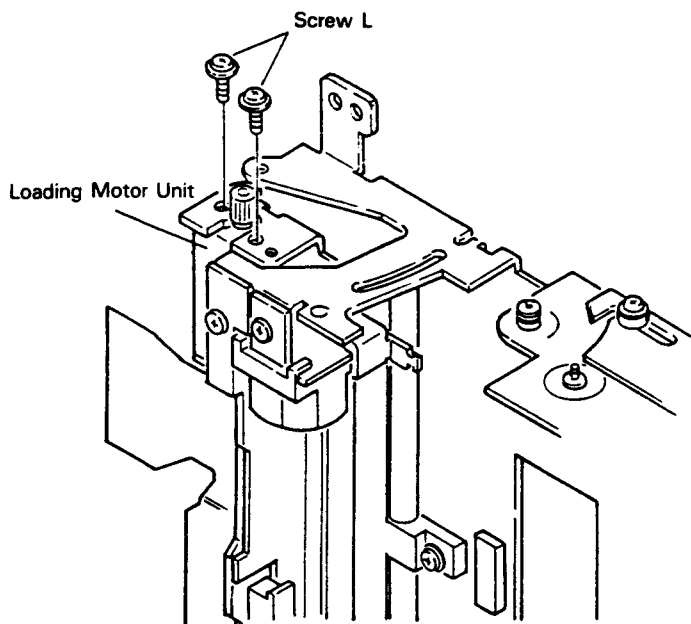
4. Remove the Screw E.
5. Remove the two Washers A and then the arm unit.
6. Remove the stop washer and then the gear.
7. Remove Screw I and then the gear.
8. Remove Screw J and then the bracket.



9. Remove Spring F.
10. Remove washer B.
11. Remove the two Screws K and then pull out the bracket unit.

Note: The bearing at the tip of the roller will also come loose. Be careful not to lose it.

Fig. 8



12. Remove the two Screws L and then the loading motor unit.

Fig. 9

2. MECHANISM DESCRIPTION

• Loading Operation

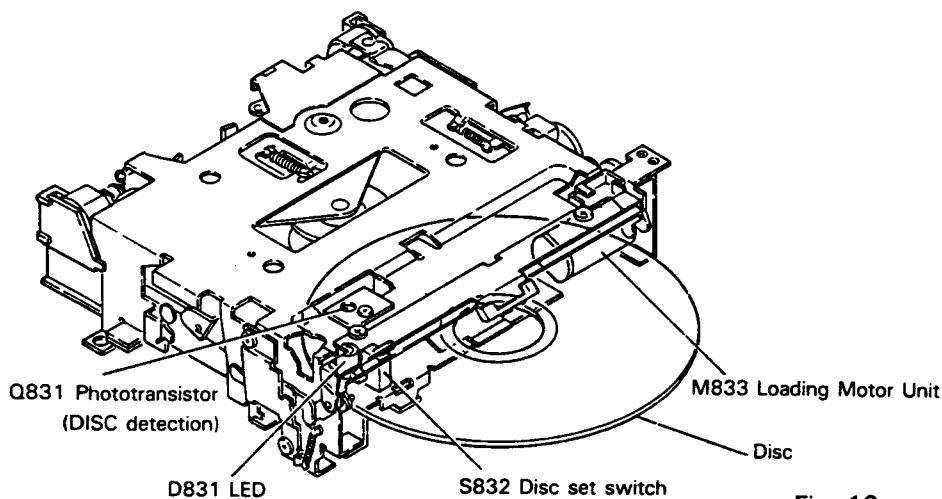


Fig. 10

1. When a disc is inserted into the unit, it enters between the LED and the phototransistor with the result that the light from the LED to the phototransistor is blocked.
2. When the phototransistor detects a disc presence in the unit, the loading motor begins to rotate and loading begins.
3. When the loading motor rotates, the roller is turned and the disc is moved into the unit. (Fig. 11)

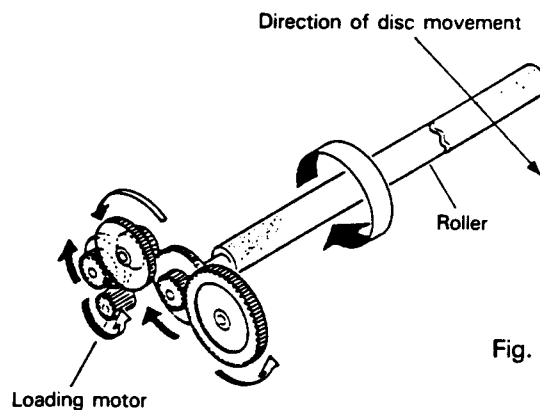


Fig. 11

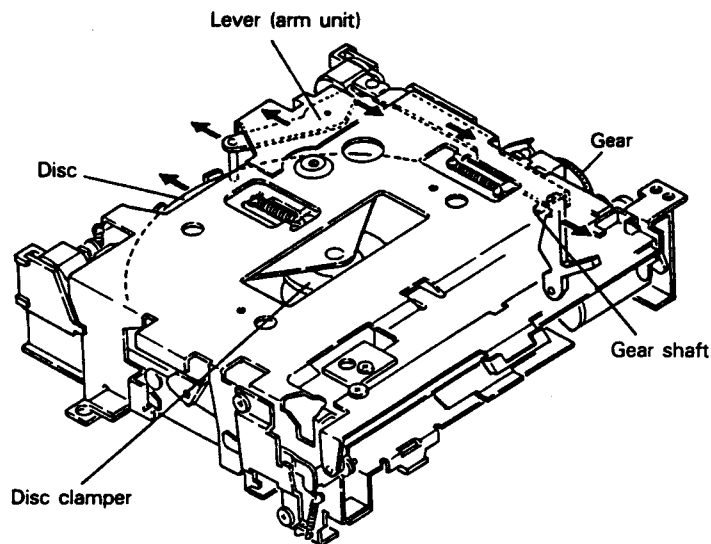


Fig. 12

4. When the disc pushes on the lever, the gear shaft lock is released. The gear meshes with another internal toothed gear and is lowered. (See Figs. 12, 13)
5. The action of the gear shaft moving down lowers the disc clamp and the disc is held in place.
6. As the gear is lowered when it meshes with the internal toothed gear, the gear unit also is lowered and the disc set switch pressed.

7. At the same time, the disc door is lowered and the disc insert door is blocked to prevent the introduction of another disc.

The three shafts of the carriage unit are in a free mode and the carriage unit is in an anti-vibration mode supported by the four damper units. (Fig. 14)

When the disc set switch is turned on, loading motor rotation stops and the loading operation is complete.

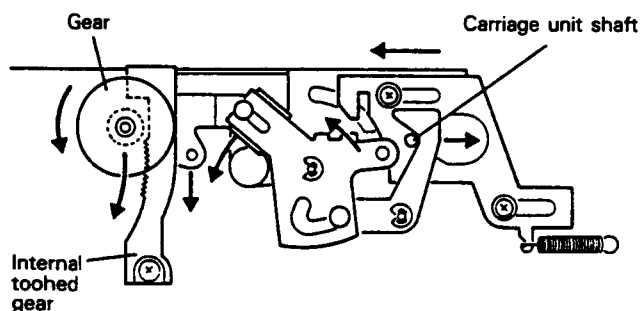


Fig. 13

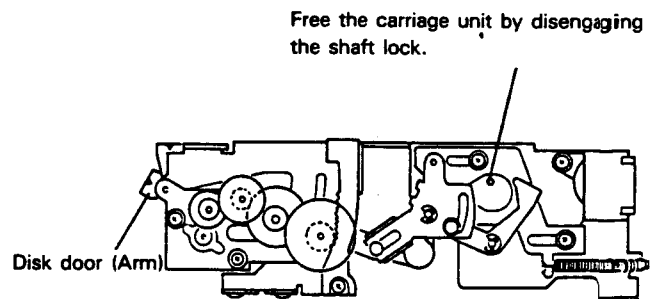
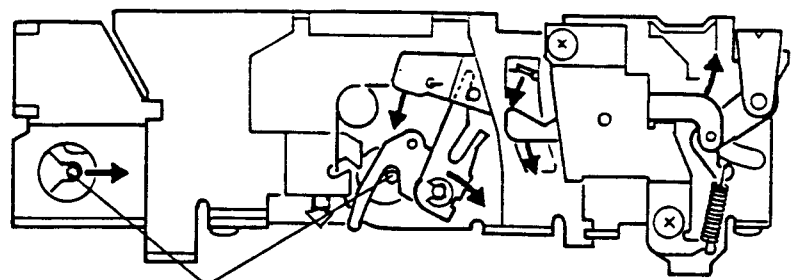


Fig. 14

(view of reverse side)



Free the carriage unit by disengaging the shaft lock.

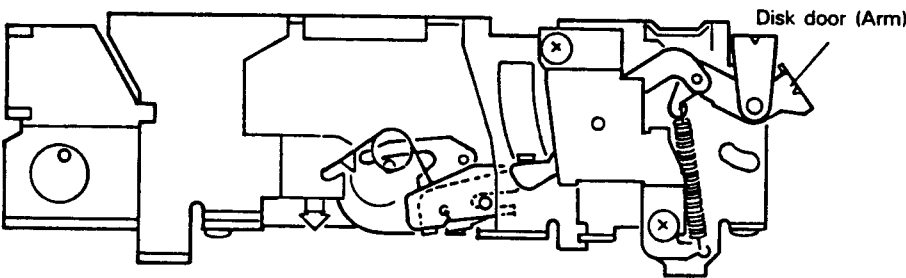
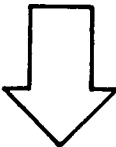


Fig. 15